CRPL-F95

IONOSPHERIC DATA

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JULY 1952

U. S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
WASHINGTON, D. C.

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SYMBOLS, TERMINOLOGY, CONVENTIONS

Beginning with data reported for January 1952, the symbols, terminology, and conventions for the determination of median values used in this report (CRPL-F series) conform as far as practicable to those adopted at the Sixth Meeting of the International Radio Consultative Committee (C.C.I.R.) in Geneva, 1951. Excerpts concerning symbols and terminology from Document No. 626-E of this Meeting are given on pages 2-7 of the report CRPL-F89, "Ionospheric Data," issued January 1952. Reprints of these pages are available upon request.

Beginning with data for January 1945, median values are published wherever possible. Where averages are reported, they are, at any hour, the average for all the days during the month for which numerical data exist.

The following conventions are used in determining the medians for hours when no measured values are given because of equipment limitations and ionospheric irregularities. Symbols used are those given in Document No. 626-E referred to above.

a. For all ionospheric characteristics:

Values missing because of A, C, F, L, M, N, Q, S, or T are omitted from the median count.

b. For critical frequencies and virtual heights:

Values of foF2 (and foE near sunrise and sunset) missing because of E are counted as equal to or less than the lower limit of the recorder. Values of h'F2 (and h'E near sunrise and sunset) missing for this reason are counted as equal to or greater than the median. Other characteristics missing because of E are omitted from the median count.

Values missing because of D are counted as equal to or greater than the upper limit of the recorder.

Values missing because of G are counted:

1. For foF2, as equal to or less than foF1.
2. For h'F2, as equal to or greater than the median.

The symbol W is included in the median count only when it replaces a height characteristic. This practice represents a change from that listed in issues previous to CRPL-F78.

Values missing for any other reason are omitted from the median count.

c. For MUF factor (M-factors):

Values missing because of G or W are counted as equal to or less than the median.

Values missing for any other reason are omitted from the median count.

d. For sporadic E (Es):

Values of fEs missing because of E or G (and B when applied to the daytime E region only) are counted as equal to or less than the median foE, or equal to or less than the lower frequency count of the recorder.

Values of fEs missing for any other reason, and values of h'Es missing for any reason at all are omitted from the median count.

Beginning with data for November 1945, doubtful monthly median values for ionospheric observations at Washington, D. C., are indicated by parentheses, in accordance with the practice already in use for doubtful hourly values. The following are the conventions used to determine whether or not a median value is doubtful:

1. If only four values or less are available, the data are considered insufficient and no median value is computed.

2. For the F2 layer, if only five to nine values are available, the median is considered doubtful. The E and F1 layers are so regular in their characteristics that, as long as there are at least five values, the median is not considered doubtful.

3. For all layers, if more than half of the values used to compute the median are doubtful (either doubtful or interpolated), the median is considered doubtful.

The same conventions are used by the CRPL in computing the medians from tabulations of daily and hourly data for stations other than Washington, beginning with the tables in IRPL-F18.

The tables and graphs of ionospheric data are correct for the values reported to the CRPL, but, because of variations in practice in the interpretation of records and scaling and manner of reporting of values, may at times give an erroneous conception of typical ionospheric characteristics at the station. Some of the errors are due to:

a. Differences in scaling records when spread echoes are present.

b. Omission of values when foF2 is less than or equal to foFl, leading to erroneously high values of monthly averages or median values.

c. Omission of values when critical frequencies are less than the lower frequency limit of the recorder, also leading to erroneously high values of monthly average or median values.

These effects were discussed on pages 6 and 7 of the previous F-series report IRPL-F5.

Ordinarily, a blank space in the fEs column of a table is the result of the fact that a majority of the readings for the month are below the lower limit of the recorder or less than the corresponding values of foE. Blank spaces at the beginning and end of columns of h'Fl, foFl, h'E, and foE are usually the result of diurnal variation in these characteristics. Complete absence of medians of h'Fl and foFl is usually the result of seasonal effects.

The dashed-line prediction curves of the graphs of ionospheric data are obtained from the predicted zero-muf contour charts of the CRPL-D series publications. The following points are worthy of note:

a. Predictions for individual stations used to construct the charts may be more accurate than the values read from the charts since some smoothing of the contours is necessary to allow for the longitude effect within a zone. Thus, inasmuch as the predicted contours are for the center of each zone, part of the discrepancy between the predicted and observed values as given in the F series may be caused by the fact that the station is not centrally located within the zone.

b. The final presentation of the predictions is dependent upon the latest available ionospheric and radio propagation data, as well as upon predicted sunspot number.

c. There is no indication on the graphs of the relative reliability of the data; it is necessary to consult the tables for such information.

The following predicted smoothed 12-month running-average Zürich sunspot numbers were used in constructing the contour charts:

Month	Predicted Sunspot Number							
	1952	1951	1950	1949	1948	1947	1946	1945
December		53	86	108	114	126	85	38
November		52	87	112	115	124	83	36
October		52	90	114	116	119	81	23
September		54	91	115	117	121	79	22
August		57	96	111	123	122	77	20
July		60	101	108	125	116	73	
June	52	63	103	108	129	112	67	
May	52	68	102	108	130	109	67	
April	52	74	101	109	133	107	62	
March	52	78	103	111	133	105	51	
February	51	82	103	113	133	90	46	
January	53	85	105	112	130	88	42	

WORLD-WIDE SOURCES OF IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 72 and figures 1 to 144 were assembled by the Central Radio Propagation Laboratory for analysis and correlation, incidental to CRPL prediction of radio propagation conditions. The data are median values unless otherwise indicated. The following are the sources of the data in this issue:

Republica Argentina, Ministerio de Marina:
Buenos Aires, Argentina
Decepcion I.

Commonwealth of Australia, Ionospheric Prediction Service of the Commonwealth Observatory:
Brisbane, Australia
Hobart, Tasmania
Townsville, Australia

Australian Department of Supply and Shipping, Bureau of Mineral Resources, Geology and Geophysics:
Watheroo, Western Australia

University of Graz:
Graz, Austria

Defence Research Board, Canada:
Baker Lake, Canada
Churchill, Canada
Fort Chimo, Canada
Ottawa, Canada
Prince Rupert, Canada
Resolute Bay, Canada
St. John's, Newfoundland
Winnipeg, Canada

Radio Wave Research Laboratories, National Taiman University, Taipeh, Formosa, China:
Formosa, China

French Ministry of Naval Aramaments (Section for Scientific Research):
Dakar, French West Africa
Tananarive, Madagascar

National Laboratory of Radio-Electricity (French Ionospheric Bureau):
Domont, France
Poitiers, France
Terre Adelie

Institute for Ionospheric Research, Lindau Uber Northeim, Hannover, Germany:
Lindau/Harz, Germany

The Royal Netherlands Meteorological Institute:
De Bilt, Holland

Icelandic Post and Telegraph Administration:
Reykjavik, Iceland

All India Radio (Government of India), New Delhi, India:
Bombay, India
Delhi, India
Madras, India
Tiruchy (Tiruchirapalli), India

Christchurch Geophysical Observatory, New Zealand Department of Scientific and Industrial Research:
Christchurch, New Zealand
Rarotonga, Cook Is.

Norwegian Defence Research Establishment, Kjeller per Lillestrom, Norway:
Oslo, Norway
Tromso, Norway

South African Council for Scientific and Industrial Research:
Capetown, Union of South Africa
Johannesburg, Union of South Africa

Research Laboratory of Electronics, Chalmers University of Technology, Gothenburg, Sweden:
Kiruna, Sweden

Research Institute of National Defence, Stockholm, Sweden:
Upsala, Sweden

Post, Telephone and Telegraph Administration, Berne, Switzerland:
Schwarzenburg, Switzerland

United States Air Force:
Cocoa, Florida

United States Army Signal Corps:
Adak, Alaska
Okinawa I.
White Sands, New Mexico

National Bureau of Standards (Central Radio Propagation Laboratory):
Anchorage, Alaska
Batavia, Ohio (mobile unit)
Baton Rouge, Louisiana (Louisiana State University)
Fairbanks, Alaska
Maui, Hawaii
Panama Canal Zone
Point Barrow, Alaska
Puerto Rico, W. I.
San Francisco, California (Stanford University)
Washington, D. C.

HOURLY IONOSPHERIC DATA AT WASHINGTON, D. C.

The data given in tables 73 to 84 follow the scaling practices given in the report IRPL-C61, "Report of International Radio Propagation Conference," pages 36 to 39, and the median values are determined by the conventions given above under "Symbols, Terminology, Conventions." Beginning with September 1949, the data are taken at Ft. Belvoir, Virginia.

IONOSPHERIC STORMINESS AT WASHINGTON, D.C.

Table 85 presents ionosphere character figures for Washington, D. C., during June 1952, as determined by the criteria given in the report IRPL-R5, "Criteria for Ionospheric Storminess," together with Cheltenham, Maryland, geomagnetic K-figures, which are usually covariant with them.

RADIO PROPAGATION QUALITY FIGURES

Table 86a gives the radio propagation quality figures (North Atlantic area) for May 1952.

In addition to the radio propagation quality figures for 00 to 12 and 12 to 24 hours UT (Universal Time or GCT) for each day, the table in this report lists some of the CRPL forecasts and warnings for North Atlantic paths for the same periods of time: (1) radio disturbance warnings broadcast on WWV, (2) short term forecasts, issued every six hours for a 12-hour period, (3) advance forecasts (semi-weekly CRPL-J reports) issued from one to 25 days in advance. The table also gives half-day averages of geomagnetic K-indices measured by the Cheltenham Magnetic Observatory of the U. S. Coast and Geodetic Survey. Part b of the table illustrates the comparison between the short term forecasts and the quality figures. The forecasts are plotted approximately at the time of issue, and they are intended to represent conditions in the 12-hour period following. The figure also illustrates the overall outcome of the advance forecasts, issued one to three or four days ahead, and in comparison is shown the result if these same forecasts were issued at random during the month.

The radio propagation quality figures are prepared from radio traffic data reported to CRPL by a method similar to that described in IRPL-R31, "North Atlantic Radio Propagation Disturbances, October 1943 through October 1945," now out of print. Beginning with the recalculated figures for January 1952, only reports of radio transmission on North Atlantic paths closely approximating New York-London are included in the estimation of quality. Observations of selected ionospheric characteristics, even though strongly correlated with radio transmission quality, and traffic reports for paths such as New York-Stockholm or New York-Tangier, previously included in the quality-figure determination with low weight, have been left out of the present calculations inasmuch as a sufficient number of homogeneous reports are now available.

The original reports are submitted on various scales and for various time intervals. The observations for each Greenwich half day are averaged on the quality scale of the original reports. These half-day indices are then adjusted to the 1 to 9 quality figure scale. The conversion table was prepared by comparing the distribution of these indices for at least four months, usually a year, with a master distribution determined from analysis of the reports made on the 1 to 9 quality figure scale. A report whose distribution is the same as the master is thereby converted linearly to the Q-figure scale. Each report is given a statistical weight which is the reciprocal of the departure from linearity. Each half-daily radio propagation quality figure, beginning January 1948, is the weighted mean of the reports received for that period.

These quality figures are, in effect, a consensus of reported radio propagation conditions in the North Atlantic area. The reasons for low quality are not necessarily known and may not be limited to ionospheric storminess. For instance, low quality may result from improper frequency usage for the path and time of day. Although, wherever it is reported,

frequency usage is included in the rating of reports, it must often be an assumption that the reports refer to optimum working frequencies. It is more difficult to eliminate from the indices conditions of low quality because of multipath, interference, etc. These considerations should be taken into account in interpreting research correlations between the Q-figures and solar, auroral, geomagnetic or similar indices.

In the comparison of forecasts and quality figures the following conventions apply: Radio disturbance warnings -- direct comparison by half-days where N is scored 0 when Q 5 and M when Q 4; U is scored 0 when Q 6, N when Q 5 or 4, and (M) when Q 3; W is scored 0 when Q 5 and N when Q 4. If a warning is broadcast for a quarter day, the more disturbed grade is used in the comparison. Short term forecasts -- direct comparison by half days, both forecast and quality figure being on the Q-scale. Only the forecasts for 00-12 and 12-24 hours are evaluated; the results for the intervening forecasts should be similar. Advance forecasts -- the whole-day forecast, on the Q scale, is compared with a whole-day index derived from the two half-daily quality figures, when different, as follows: if either half-day Q-figure is 4 or less, the whole-day index is the lower of the two; if both half-day Q-figures are 6 or more, the whole-day index is the higher of the two; if the 00-12 Q-figure is 5 and the other is greater than 5, the whole-day index is the higher; if the 00-12 Q-figure is greater than 5 and the other is 5, the whole-day index is 5.

Note. The North Pacific quality figures which were published through October 1951 have been temporarily discontinued. Since the establishment of the North Pacific Radio Warning Service at Anchorage, Alaska, a larger number of reports are being received than were previously available in Washington. The preparation of the quality figures will be resumed when sufficient data have been accumulated for determination of conversion tables for these new reports.

OBSERVATIONS OF THE SOLAR CORONA

Tables 87 through 89 give the observations of the solar corona during June 1952 obtained at Climax, Colorado, by the High Altitude Observatory of Harvard University and the University of Colorado. Tables 90 through 92 list the coronal observations obtained at Sacramento Peak, New Mexico, during June 1952, derived by the High Altitude Observatory from spectrograms taken by Harvard University as a part of its performance of an Air Material Command Research and Development Contract adminstered by the Air Force Cambridge Research Laboratories. The data are listed separately for east and west limbs at 5-degree intervals of position angle north and south of the Solar Equator at the limb. The time of observation is given to the nearest tenth of a day, GCT.

Table 87 gives the intensities of the green (5303A) line of the emission spectrum of the solar corona; table 88 gives similarly the intensities of the first red (6374A) coronal line; and table 89, the intensities of the second red (6702A) coronal line; all observed at Climax in June 1952.

Table 90 gives the intensities of the green (5303A) coronal line; table 91, the intensities of the first red (6374A) coronal line; and table 92, the intensities of the second red (6702A) coronal line; all observed at Sacramento Peak in June 1952.

The following symbols are used in tables 87 through 92: a, observation of low weight; -, corona not visible; and X, position angle not included in plate estimates.

Tables 93 and 94 give details of the Climax, Colorado, and Sacramento Peak, New Mexico, observations, respectively, from January 1952 through June 1952. The first column lists the Greenwich date of observation; the following columns give the threshold or lowest observable intensity of 5303A for each spectrum plate centered at the astronomical position angle indicated; the last two columns indicate the observer and the person responsible for the intensity estimates of the observation. These tables continue the presentation of coronal data in the manner of table 1 of CRPL-1-4 and appear in the F series regularly at intervals of six months.

RELATIVE SUNSPOT NUMBERS

Table 95 lists the daily provisional Zürich relative sunspot number, R_Z, as communicated by the Swiss Federal Observatory. Table 96 continues the new series of American relative sunspot numbers, R_A'. Beginning with 1951, the observations collected by the Solar Division, AAVSO, have been reduced according to a new procedure, such that only high quality observations of experienced observers are combined into R_A'. Observatory coefficients for each of the 28 selected observers were recomputed on data for 1948-1950, years when there was a wide range of solar activity. Otherwise, the procedure is that outlined in Publication of the Astronomical Society of the Pacific, 61, 13, 1949. The scale of the American numbers in 1951 differs from that of the reports for earlier years because of these changes, and the new series is designated R_A' rather than R_A. The American relative sunspot numbers appear monthly in these pages as communicated by the Solar Division.

OBSERVATIONS OF SOLAR FLARES

Table 97 gives the preliminary record of solar flares reported to the CRPL. These reports are communicated on a rapid schedule at the sacrifice of detailed accuracy. Definitive and complete records are published later in the Quarterly Bulletin of Solar Activity, I.A.U., in various observatory publications, and elsewhere. The present listing serves to identify and roughly describe the phenomena observed. Details should be sought from the reporting observatory.

Reporting directly to the CRPL are the following observatories: Mt. Wilson, McMath-Hulbert, U. S. Naval, Wendelstein, Kanzel and High Altitude at Sacramento Peak, New Mexico. The remainder report to Meudon (Paris), and the data are taken from the Paris-URSIgram broadcast, monitored fairly regularly by the CRPL. The data on solar flares reported from Sacramento Peak, New Mexico, communicated by the High Altitude Observatory at Boulder, Colorado, are provided by Harvard University as the result of work undertaken on an Air Materiel Command Research and Development Contract administered by the Air Force Cambridge Research Laboratories.

The table lists for each flare the reporting observatory, date, times of beginning and ending of observation, duration (when known), total area (corrected for foreshortening), and heliographic coordinates. For the maximum phase of the flare is given the time, intensity, area relative to the total area, and the importance. The column "SID observed" is to indicate when a sudden ionosphere disturbance, noted elsewhere in these reports, occurred at the time of a flare. Times are in Universal Time (GCT).

INDICES OF GEOMAGNETIC ACTIVITY

Table 98 lists various indices of geomagnetic activity based on data from magnetic observatories widely distributed throughout the world. The indices are: (1) preliminary international character-figures, C; (2) geomagnetic planetary three-hour-range indices, Kp; (3) magnetically selected quiet and disturbed days.

The C-figure is the arithmetic mean of the subjective classification by all observatories of each day's magnetic activity on a scale of 0 (quiet) to 2 (storm). The magnetically quiet and disturbed days are selected by the international scheme outlined on pages 219-227 in the December 1943 issue of Terrestrial Magnetism and Atmospheric Electricity. The details of the currently used method follow. For each day of a month, its geomagnetic activity is assigned by weighting equally the following four criteria: (1) C; (2) the sum of the eight Kp's; (3) the greatest Kp; and (4) the sums of the squares of the eight Kp's.

Kp is the mean standardized K-index from 11 observatories between geomagnetic latitudes 47 and 63 degrees. The scale is 0 (very quiet) to 9 (extremely disturbed), expressed in thirds of a unit, e.g. 5- is 4 2/3, 5o is 5 0/3, and 5+ is 5 1/3. This planetary index is designed to measure solar particle-radiation by its magnetic effects, specifically to meet the needs of research workers in the ionospheric field. A complete description of Kp has appeared in Bulletin 12b, "Geomagnetic Indices C and K, 1948," published in Washington, D. C., 1949, by the Association of Terrestrial Magnetism and Electricity, International Union of Geodesy and Geophysics. Tables of Kp for 1945-48 are in Bulletin 12b; for 1940-44

and 1949, in these CRPL-F reports, F65-67; for 1950, monthly in F68 and following issues. Current tables are also published quarterly in the Journal of Geophysical Research along with data on sudden commencements (sc) and solar flare effects (sfe).

The Committee on Characterization of Magnetic Disturbance, ATME, IUGG, has kindly supplied this table. The Meteorological Office, De Bilt, Holland, collects the data and compiles C and selected days. The Chairman of the Committee computes the planetary index. At the meeting of ATME held in Brussels in August 1951, it was decided that the computation of Kw would be discontinued after the month of December 1951 since Kp is available from January 1, 1940. Kw, therefore, no longer appears in these reports.

SUDDEN IONOSPHERE DISTURBANCES

Tables 99 and 100 list respectively the sudden ionosphere disturbances observed at Ft. Belvoir, Virginia, June 1952; and at Point Reyes, California, June and July 1952.

TABLES OF IONOSPHERIC DATA

Table 1

Washington, D. C. (38.7°N, 77.1°W) June 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	4.0					3.3	3.0
01	270	3.5					3.6	3.0
02	260	3.2					3.0	3.0
03	270	2.8					3.4	3.0
04	280	2.5					3.4	3.0
05	260	3.1	240	---	120	---	3.3	3.2
06	330	3.8	230	3.3	110	2.2	3.8	3.1
07	400	4.3	210	3.7	100	2.5	4.4	2.9
08	370	4.7	200	4.0	100	2.8	5.2	3.0
09	380	5.0	200	4.2	100	3.0	6.0	3.0
10	370	5.1	200	4.3	100	3.2	5.0	3.0
11	400	5.2	190	4.3	100	3.2	5.1	2.9
12	400	5.2	190	4.4	100	3.3	4.6	2.8
13	420	5.4	200	4.4	100	3.3	4.6	2.8
14	370	5.4	210	4.3	100	3.2	5.2	2.9
15	360	5.6	210	4.3	100	3.2	4.6	2.9
16	360	5.4	210	4.1	100	3.0	3.8	3.0
17	330	5.5	220	3.9	110	2.7	4.1	2.9
18	300	5.7	230	3.4	110	2.2	3.8	3.1
19	250	5.9	250	---	120	1.8	3.6	3.1
20	240	5.8					3.3	3.1
21	240	5.3					3.7	3.0
22	260	4.7					3.6	3.0
23	260	4.4					3.5	3.0

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 2

Point Barrow, Alaska (71.3°N, 156.8°W) May 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	(3.5)					6.3	(3.0)
01	280	(3.6)					6.0	(3.2)
02	260	(3.4)			---	---	5.7	(3.2)
03	260	3.4	---	---	100	---	6.0	3.1
04	---	3.9	---	---	100	---	4.4	---
05	---	(4.0)	230	3.2	100	(2.2)	4.8	---
06	---	(4.1)	240	3.2	100	(2.3)	3.8	---
07	---	(4.3)	---	3.6	100	---	4.6	---
08	(420)	(4.4)	210	3.7	100	---	5.1	(2.8)
09	420	4.4	200	3.8	100	---	4.9	(2.9)
10	450	4.2	200	3.8	100	3.0	3.7	2.7
11	440	4.5	200	3.8	100	2.9		2.8
12	450	4.4	200	3.9	100	2.9		2.7
13	460	4.4	200	3.9	100	2.9		2.7
14	440	4.4	210	3.9	100	2.8		2.8
15	400	4.6	210	3.9	100	2.8		2.8
16	380	4.7	210	3.8	100	2.7		3.0
17	360	4.6	210	3.8	100	(2.5)		3.0
18	340	4.5	210	(3.6)	100	2.4		3.1
19	300	4.5	220	(3.4)	100	(2.2)	3.8	3.2
20	290	4.2	220	(3.0)	100	(2.0)	3.8	3.2
21	270	3.9	220	---	100	---	5.0	3.3
22	270	3.6	---	---	---	---	4.5	(3.3)
23	280	(3.5)			---	---	5.8	(3.2)

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 3

Tromso, Norway (69.7°N, 19.0°E) May 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	3.8			---	---	3.6	2.8
01	(310)	(4.1)	270	---	---	---	3.2	(2.9)
02	---	(4.2)	280	---	---	---	4.1	(3.0)
03	(355)	4.0	260	(2.9)	---	1.6	3.8	2.9
04	(380)	4.2	240	3.2	100	2.0	3.2	2.9
05	375	4.2	235	3.4	105	2.1	3.0	2.8
06	410	4.4	235	3.6	110	2.3	3.0	2.9
07	380	4.6	230	3.8	100	2.5	3.1	3.0
08	390	4.8	220	4.0	100	2.7	3.1	2.9
09	395	4.8	215	4.0	100	2.8	3.0	2.9
10	365	5.0	210	4.1	105	2.8	2.7	3.0
11	390	5.0	220	4.2	110	2.9		2.8
12	365	5.0	210	4.1	105	2.9	3.0	3.0
13	405	4.7	220	4.1	105	2.8	2.9	2.8
14	415	4.6	225	4.1	110	2.8		2.8
15	390	4.6	235	4.0	105	2.7		2.9
16	360	4.6	240	4.0	105	2.6	2.9	3.0
17	340	4.7	240	3.8	105	2.4	3.2	3.0
18	325	4.6	240	3.6	110	2.2	3.3	3.1
19	330	4.4	255	---	110	2.0	3.3	3.0
20	305	4.5	275	---	110	1.9	3.7	3.1
21	300	4.4	---	---	110	1.6	3.7	3.1
22	300	4.5	---	---	---	---	3.2	3.0
23	300	4.3	---	---	---	---	3.0	3.1

Time: 15.0°E.
Sweep: 0.6 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 4

Fairbanks, Alaska (64.9°N, 147.8°W) May 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	(3.8)			---	---	5.0	(2.9)
01	300	(3.8)			---	---	5.0	(3.0)
02	300	(3.4)			---	---	5.5	(2.8)
03	300	(4.0)	---	---	---	---	5.6	(2.8)
04	340	(4.1)	270	---	120	1.7	6.8	(2.8)
05	400	(4.0)	230	3.2	110	2.0	5.9	(2.7)
06	420	(4.2)	220	3.5	110	2.2	5.4	(2.7)
07	420	4.4	210	3.5	110	(2.4)		2.7
08	450	4.4	210	3.7	100	(2.6)		2.6
09	480	4.4	200	3.8	110	(2.7)		2.6
10	450	4.4	200	3.9	110	2.8		2.7
11	480	4.4	210	4.0	110	(2.9)		2.6
12	460	4.4	200	4.0	110	2.9		2.7
13	490	4.5	210	4.0	110	2.9		2.6
14	480	4.5	220	4.0	110	(2.8)		2.6
15	440	4.6	220	3.9	110	(2.7)		2.6
16	400	4.6	230	3.8	110	(2.5)		2.8
17	370	4.6	230	3.7	110	2.3		2.9
18	340	4.5	240	3.6	110	2.2		3.0
19	(300)	4.5	250	---	120	1.9	3.6	3.0
20	260	(4.2)	---	---	130	1.9	3.7	(3.1)
21	260	(4.4)			---	---	3.2	(3.0)
22	260	(4.4)					3.3	(3.0)
23	270	(3.8)					4.9	(3.0)

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 5

Anchorage, Alaska (61.2°N, 149.9°W) May 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	3.2					2.0	3.0
01	300	2.9					1.7	2.9
02	290	2.6					2.0	3.1
03	300	3.1	280	---	---	---		3.0
04	280	3.6	250	2.8	120	1.9		3.0
05	400	3.7	230	3.2	110	2.1		2.8
06	400	4.0	210	3.4	100	2.3		2.8
07	400	4.3	200	3.6	100	2.6		2.8
08	440	4.5	200	3.8	100	2.8		2.7
09	460	4.4	200	3.9	100	2.9		2.7
10	440	4.6	190	3.9	100	3.0		2.7
11	460	4.6	200	4.0	100	3.0		2.7
12	480	4.4	200	4.0	100	3.1		2.6
13	500	4.5	200	4.1	100	3.0		2.7
14	450	4.5	200	4.0	100	3.0		2.6
15	420	4.5	200	4.0	100	3.0		2.7
16	400	4.5	210	3.9	100	2.7		2.8
17	350	4.5	210	3.8	100	2.7		3.0
18	320	4.5	230	3.6	110	2.3		3.1
19	280	4.5	230	---	110	2.1		3.2
20	250	4.4	250	---	---	---		3.2
21	250	4.2					2.6	3.3
22	250	3.6					2.8	3.2
23	300	3.3					2.6	3.0

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 6

Oslo, Norway (60.0°N, 11.1°E) May 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	275	3.8					2.3	2.8
01	280	3.3					2.6	2.8
02	295	2.9					2.6	2.8
03	300	2.8			---	---	2.2	2.8
04	270	3.2	260	2.6	---	E	2.9	2.9
05	355	3.6	245	3.2	125	1.7	3.2	2.8
06	460	4.0	225	3.5	115	2.1	3.3	2.7
07	510	4.1	220	3.8	110	2.4	3.4	2.6
08	450	4.4	210	4.0	110	2.6	3.2	2.6
09	420	4.7	215	4.0	105	2.8	3.5	2.7
10	410	4.9	210	4.2	105	2.9	3.5	2.7
11	405	5.0	205	4.2	105	3.0	3.5	2.8
12	370	5.2	205	4.2	105	3.0	3.4	2.9
13	380	5.2	210	4.3	105	3.0	3.3	2.8
14	415	5.0	210	4.3	110	3.0		2.8
15	365	5.0	215	4.2	110	2.9		3.0
16	345	5.0	220	4.1	110	2.7	3.4	3.0
17	335	5.0	230	4.0	115	2.5		3.1
18	300	5.2	235	3.7	115	2.2	3.1	3.0
19	280	5.1	245	3.2	120	1.8	3.3	3.1
20	260	5.0	250	---	140	1.4		3.1
21	250	4.8			---	E	1.8	3.0
22	260	4.5						3.0
23	270	4.0						2.9

Time: 15.0°E.
Sweep: 1.3 Mc to 14.0 Mc in 8 minutes; automatic operation.

Table 7

Upsala, Sweden (59.8°N, 17.6°E) May 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.2					2.4	2.8
01	285	3.1					2.6	2.8
02	290	2.8					2.9	2.8
03	280	3.0			---	E	3.1	2.8
04	300	3.5	250	(3.0)	---	E	3.0	2.9
05	450	3.8	235	3.4	120	1.9	3.2	2.9
06	505	4.2	225	3.6	110	2.3	3.4	2.7
07	550	4.2	220	3.8	110	2.5	3.4	2.5
08	460	4.5	220	4.0	105	2.7	3.3	2.7
09	390	4.9	210	4.1	105	2.8	3.5	2.8
10	415	5.0	215	4.2	105	2.9	4.1	2.8
11	405	5.1	210	4.2	105	3.0	3.7	2.8
12	370	5.2	205	4.2	105	3.0	3.6	2.9
13	400	5.1	205	4.2	105	2.9	3.3	2.9
14	400	5.0	215	4.2	105	2.9	3.2	2.8
15	350	5.0	215	4.1	105	2.8		3.0
16	350	5.0	220	4.0	110	2.6	3.1	2.9
17	310	5.0	230	3.7	110	2.4	3.2	3.0
18	300	5.2	240	3.4	115	2.1	3.5	3.1
19	270	5.0	250	(3.0)	130	1.7	3.2	3.1
20	260	4.9			---	---	3.0	3.0
21	250	4.7					2.2	3.0
22	260	4.0					2.3	2.8
23	(280)	3.8					2.4	2.9

Time: 15.0°E.
Sweep: 1.4 Mc to 17.0 Mc in 6 minutes, automatic operation.

Table 8

Adak, Alaska (51.9°N, 176.6°W) May 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.5					2.1	2.8
01	270	(3.5)					2.0	(2.8)
02	300	(3.1)					2.0	(2.8)
03	300	3.0					2.3	2.8
04	340	3.2	280	2.5	130	1.3	2.5	2.8
05	440	3.8	260	3.0	120	1.8	2.3	2.6
06	440	4.2	240	3.4	110	2.2	3.6	2.7
07	390	4.6	230	3.7	110	2.6	3.8	2.8
08	440	4.6	210	3.9	110	2.8	5.0	2.8
09	520	4.4	210	4.0	110	3.0	5.4	2.6
10	510	4.4	210	4.1	110	(3.1)	4.3	2.6
11	490	4.6	210	4.2	110	(3.1)	4.6	2.6
12	500	4.6	210	4.2	110	(3.2)	4.9	2.6
13	480	4.8	210	4.2	110	3.1	4.6	2.7
14	420	4.8	210	4.1	110	3.1	4.1	2.7
15	390	4.9	220	4.0	110	3.0	4.1	2.8
16	370	4.7	230	3.9	110	2.8	3.8	2.9
17	330	4.7	240	3.7	110	2.5	3.8	3.0
18	310	4.9	250	3.4	120	2.0	3.8	3.0
19	280	5.2	260	---	130	1.5	3.7	3.1
20	260	5.5					3.1	3.1
21	260	5.5					2.6	3.0
22	260	4.8						2.9
23	270	4.0					2.0	2.8

Time: 180.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 9

Graz, Austria (47.1°N, 15.5°E) May 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	4.2						
01	300	3.7						
02	300	3.4						
03	300	3.4						
04	300	3.3						
05	250	3.9						
06	260	4.2	220	3.6				
07	300	5.2	210	3.9		2.6	3.7	
08	290	5.7	200	4.0			4.1	
09	285	5.8	200	4.2	(105)	3.0	4.0	
10	285	5.9	200	4.4	(110)	3.2	4.2	
11	300	6.2	200	4.5	110	3.3	3.9	
12	340	5.9	200	4.5	(105)		3.9	
13	340	6.1	200	4.5	110	3.4	3.8	
14	310	6.0	200	4.5	100	3.3	3.6	
15	300	6.0	200	4.3	110	3.1	3.8	
16	300	5.9	205	4.1			4.0	
17	290	6.0	235	3.9		(2.7)	4.0	
18	250	6.3		3.6			3.9	
19	250	6.4					3.0	
20	250	6.4					3.0	
21	250	6.2						
22	255	5.2						
23	280	4.4						

Time: 15.0°E.
Sweep: 2.5 Mc to 12.0 Mc in 2 minutes.

Table 10

Batavia, Ohio (39.1°N, 84.1°W) May 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(280)	3.1						2.9
01	(300)	3.0						2.8
02	(300)	2.8						2.8
03	(300)	2.5						2.8
04	(280)	2.2						(2.8)
05	(300)	2.4						2.9
06	260	3.4	240	3.0	130	1.8		3.1
07	460	4.1	220	3.6	110	2.2		(2.7)
08	460	(4.4)	210	3.9	110	2.6	3.1	2.5
09	440	4.4	200	4.0	110	2.8	4.1	2.7
10	500	4.6	190	4.1	110	3.0	4.0	2.4
11	530	4.7	190	4.2	110	3.1	4.4	2.5
12	500	4.7	180	4.3	110	3.2	4.2	2.6
13	440	5.0	190	4.3	110	3.2	4.4	2.8
14	410	5.0	200	4.2	110	3.2	4.0	2.7
15	400	5.2	210	4.2	110	3.1	3.8	2.8
16	360	5.2	210	4.1	110	3.0		2.9
17	340	5.2	220	3.9	110	2.7		2.9
18	310	5.4	230	3.6	110	2.3		3.0
19	270	5.6	240	---	120	(1.9)		3.0
20	240	5.6					2.6	3.1
21	250	4.8						3.0
22	(260)	3.9						3.0
23	(280)	3.6						2.9

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds. Mobile unit.

Table 11

San Francisco, California (37.4°N, 122.2°W) May 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.5					3.0	2.8
01	280	3.6					3.0	2.8
02	280	3.3					2.5	2.8
03	280	3.2					2.2	2.8
04	280	3.2					2.4	2.9
05	300	3.4	280	---			2.8	3.0
06	340	4.1	240	3.3	---	2.0	3.2	3.0
07	340	4.5	220	3.8	110	2.5	3.7	3.0
08	380	4.8	220	4.0	110	2.8	4.0	2.9
09	380	5.4	200	4.2	110	3.0	4.0	2.9
10	400	5.6	200	(4.2)	110	3.2	4.0	2.8
11	370	5.7	200	(4.2)	110	---	4.0	2.9
12	370	5.9	210	(4.2)	110	---	3.8	2.8
13	380	5.8	210	(4.3)	110	---	3.3	2.8
14	360	6.0	220	(4.3)	110	---	3.5	3.0
15	340	6.0	220	4.2	110	3.2	3.5	3.0
16	340	5.6	230	4.0	120	---	2.3	3.0
17	320	5.5	240	3.8	120	2.6	3.5	3.0
18	290	5.5	240	3.4	---	2.2	3.8	3.1
19	250	5.9					3.3	3.1
20	240	5.6					3.6	3.1
21	250	5.0					3.5	3.0
22	270	4.2					3.6	2.9
23	280	3.8					3.5	2.8

Time: 120.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 12

White Sands, New Mexico (32.3°N, 106.5°W) May 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	3.6					2.5	2.8
01	280	3.6					2.3	2.9
02	280	3.4					2.6	2.8
03	280	3.3					2.2	2.9
04	270	3.1					1.9	2.9
05	260	3.2			---	---	2.3	3.1
06	290	4.3	220	3.2	110	1.9	3.2	3.2
07	330	4.7	220	3.7	100	2.4	3.8	3.0
08	320	5.1	210	4.0	100	2.7	4.2	3.0
09	350	5.2	200	4.2	100	3.0	3.7	3.0
10	400	5.3	190	4.3	100	3.1	3.6	2.8
11	400	5.8	190	4.4	100	3.2	3.9	2.8
12	370	6.2	200	4.4	100	3.2	3.6	2.8
13	350	6.5	210	4.4	100	3.3	3.5	2.8
14	330	6.9	210	4.3	100	3.2	3.2	2.9
15	330	6.4	220	4.2	100	3.1	3.2	3.0
16	310	6.5	220	4.1	100	2.8	3.5	3.1
17	290	6.2	230	3.8	110	2.5	3.5	3.1
18	270	6.2	240	---	110	2.0	3.2	3.2
19	250	6.3					2.6	3.1
20	230	5.8					2.4	3.2
21	250	4.8					2.4	3.0
22	280	4.0					2.4	2.9
23	290	3.6					2.4	2.8

Time: 105.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Tablo 13

Baton Rouge, Louisiana (30.5°N, 91.2°W) May 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330	3.6					2.6	2.7
01	310	3.6						2.8
02	310	3.3					2.4	2.8
03	300	3.3					2.6	2.9
04	300	3.0						2.9
05	300	3.2					2.3	3.0
06	300	4.3	250	---	130	2.0	3.4	3.1
07	320	5.0	240	3.7	120	2.4	3.8	3.1
08	370	5.0	220	4.0	120	2.8	6.5	2.9
09	400	5.2	220	4.2	120	3.0	6.1	2.9
10	400	5.8	210	4.3	120	3.2	6.1	2.8
11	400	5.8	200	4.4	120	3.2	5.8	2.7
12	410	6.1	210	4.4	120	3.3	4.1	2.7
13	380	6.8	220	4.4	120	3.3	3.6	2.8
14	360	7.0	240	4.4	120	3.3	4.0	[illegible]
15	350	6.6	240	4.2	120	3.1	3.8	2.9
16	340	6.5	240	4.1	120	2.9	3.8	3.0
17	330	6.4	250	3.8	120	2.5	4.0	3.0
18	270	6.3	---	---	---	---	3.3	3.0
19	260	6.4						3.1
20	250	5.7					3.1	3.0
21	270	4.8					3.3	3.0
22	300	3.8					3.0	2.8
23	320	3.7						2.8

Time: 90.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 14

Okinawa I. (26.3°N, 127.8°E) May 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	6.6					5.5	2.7
01	310	(6.4)					5.4	2.8
02	280	(6.1)					4.1	(3.0)
03	290	(5.4)					4.4	2.9
04	280	(5.0)					3.7	(3.0)
05	270	4.5					2.5	3.0
06	260	5.3	---	---	120	2.0	3.7	3.2
07	260	5.6	240	---	120	(2.5)	5.0	3.2
08	320	6.0	240	---	120	(2.9)	5.4	3.0
09	360	6.4	240	4.4	120	3.2	5.8	2.8
10	400	7.4	(240)	4.6	120	(3.3)	6.1	2.7
11	410	8.8	240	4.6	120	(3.4)	5.4	2.6
12	380	9.6	230	4.6	120	(3.3)	5.6	2.7
13	350	10.6	(240)	4.6	120	(3.4)	6.2	2.8
14	330	11.0	250	4.5	120	(3.3)	4.9	2.8
15	330	11.1	250	4.3	120	3.1	4.9	2.9
16	320	10.9	260	4.2	120	(2.9)	5.0	2.9
17	310	10.8	250	---	120	(2.5)	4.4	3.0
18	290	11.0	---	---	---	---	4.6	3.0
19	270	9.8					4.1	3.0
20	260	7.9					4.1	3.0
21	320	(6.8)					4.5	(2.7)
22	340	(6.7)					5.6	2.6
23	340	7.0					6.0	2.7

Time: 127.5°E.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 15

Maui, Hawaii (20.8°N, 156.5°W) May 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	5.1					2.1	2.8
01	310	5.1					3.0	2.8
02	280	4.8					2.6	3.0
03	280	4.1					2.4	2.9
04	270	4.1					2.0	3.0
05	280	3.8					1.9	2.9
06	260	4.0	260	---	130	(1.3)	2.4	3.0
07	300	5.0	240	3.7	120	2.2	4.0	2.9
08	360	5.5	230	4.2	120	2.7	4.5	2.7
09	400	6.3	220	4.4	120	3.0	4.7	2.6
10	420	7.2	220	4.5	110	3.2	5.6	2.5
11	390	8.0	220	4.5	110	3.3	4.6	2.6
12	390	8.6	220	4.5	110	3.4	4.8	2.7
13	370	9.4	230	4.5	110	3.5	4.7	2.8
14	350	10.0	220	4.5	110	3.3	4.3	2.8
15	340	10.4	230	4.4	120	3.2	4.4	2.9
16	310	10.5	230	4.2	110	3.0	4.3	3.0
17	300	10.5	240	4.0	120	2.6	4.6	3.0
18	280	10.6	250	(3.5)	120	1.9	3.7	3.1
19	240	9.2					3.6	3.2
20	230	7.3					3.2	3.1
21	260	5.9					3.3	2.8
22	310	5.5					3.8	2.7
23	300	5.3					2.6	2.7

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 16

Puerto Rico, W.I. (18.5°N, 67.2°W) May 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	5.6					[illegible]	3.0
01	240	6.0					2.5	3.1
02	240	5.0					2.6	3.1
03	240	4.5					2.5	3.1
04	250	4.1					2.0	3.1
05	250	3.4					2.3	3.1
06	240	[illegible]	---	---	100	---	2.9	3.3
07	250	[illegible]	220	---	100	---	4.2	3.3
08	280	5.6	200	(3.9)	100	2.5	4.4	3.3
09	300	[illegible]	210	4.3	100	(3.0)	4.5	3.1
10	340	6.2	220	4.5	100	(3.2)	4.7	3.0
11	360	[illegible]	210	4.6	100	(3.4)	4.9	2.8
12	360	7.0	220	4.5	100	3.5		2.8
13	320	8.7	220	4.5	100	3.5	4.9	3.0
14	300	9.3	220	4.4	100	3.4	4.5	3.0
15	300	9.2	220	4.4	100	3.3	4.7	3.0
16	280	9.2	220	4.2	100	3.0	4.5	3.1
17	270	8.9	220	(4.0)	100	2.6	4.1	3.2
18	250	8.6	220	---	(100)	---	3.4	3.3
19	230	7.8					3.3	3.2
20	240	7.0					3.7	3.0
21	260	6.2					3.6	3.0
22	270	5.9					3.1	2.9
23	280	5.6					2.7	2.9

Time: 60.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 17

Panama Canal Zone (9.4°N, 79.9°W) May 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	6.6					3.5	3.0
01	260	5.8					3.3	2.9
02	270	5.1					3.9	2.8
03	260	5.0					3.3	3.0
04	240	4.6					3.2	3.0
05	230	3.6					2.9	3.1
06	250	3.8			---	---	4.0	3.1
07	240	4.9	220	---	120	2.2	4.4	3.1
08	320	5.8	210	(4.2)	110	(2.8)	4.2	3.0
09	350	6.6	210	(4.4)	110	(3.1)	4.2	2.8
10	360	7.4	210	4.5	110	3.3	4.2	2.6
11	390	8.3	210	4.5	110	3.5	4.4	2.6
12	380	9.2	220	4.5	110	3.5	4.7	2.7
13	360	10.1	210	4.5	110	3.5	4.9	2.7
14	340	10.9	220	4.4	110	3.4	5.2	2.8
15	320	11.0	210	4.3	110	3.2	4.8	2.9
16	310	10.9	220	4.2	110	3.0	4.8	2.9
17	280	11.0	230	(4.0)	110	2.4	4.5	3.0
18	250	10.3	240	---			4.3	3.0
19	240	9.2					4.2	3.0
20	250	8.1					4.1	2.8
21	260	7.0					2.9	2.9
22	270	6.8					2.6	2.8
23	280	6.2					2.4	2.8

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 18

Resolute Bay, Canada (74.7°N, 94.9°W) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	[illegible]	3.7			---	---		2.9
01	270	3.5			---	---		2.9
02	280	3.5			---	1.6		2.9
03	280	3.5			130	1.7		2.9
04	270	3.6			120	1.8		3.0
05	280	3.7	260	3.0	120	1.9		2.9
06	290	3.8	250	3.0	120	2.0		3.0
07	370	3.8	250	3.3	120	2.2		2.8
08	400	4.0	240	3.4	120	2.4		2.6
09	430	4.1	240	3.5	120	2.4		2.7
10	510	3.7	230	3.5	120	2.6		(2.4)
11	480	3.9	240	3.6	120	2.7		(2.6)
12	460	4.3	230	3.7	120	2.8		2.5
13	(460)	(4.0)	240	3.6	120	2.7		(2.6)
14	520	4.2	240	3.6	120	2.6		G
15	450	3.7	240	3.5	120	2.5		(2.6)
16	380	4.0	240	3.5	120	2.4		(2.6)
17	350	3.9	240	3.3	120	2.4		2.8
18	340	4.0	250	3.2	120	2.1		2.8
19	290	3.8	240	3.0	120	2.0		2.9
20	280	3.8	250	---	120	1.9		2.8
21	280	3.8	---	---	120	1.7		2.9
22	280	3.7			---	1.7		2.9
23	280	3.7			130	1.7		3.0

Time: 90.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 19

Kiruna, Sweden (67.8°N, 20.5°E) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(35[illegible])	(3.3)					4.2	
01	(300)	(3.2)					4.2	
02	(310)	(2.8)					3.3	
03	(310)	(3.0)					2.[illegible]	
04	(265)	(3.3)	---	---	---	1.8		
05	(265)	(3.8)	---	---	---	---		
06	(290)	(4.2)	---	---	110	2.2		
07	345	4.3	220	3.6	110	2.6		
08	340	4.7	225	3.7	110	2.7		
09	350	4.8	210	3.9	110	2.8		
10	320	5.0	220	4.[illegible]	110	2.8		
11	360	5.1	215	4.0	110	3.0		
12	325	5.1	215	4.0	110	2.9		
13	340	5.0	225	4.0	110	2.9		
14	330	5.0	215	3.9	110	2.8		
15	300	4.7	225	3.7	110	2.6		
16	300	4.8	225	3.5	110	2.4		
17	275	4.8	240	3.4	110	2.2		
18	260	4.6	---	3.3	---	2.1	2.9	
19	275	4.2	---	---	---	---	4.0	
20	290	4.0					4.3	
21	(290)	(3.7)					3.9	
22	(305)	(3.6)					4.3	
23	(310)	(3.5)					4.2	

Time: 15.0°E.
Sweep: 0.8 Mc to 15.0 Mc in 30 seconds.

Table 20

Fairbanks, Alaska (64.9°N, 147.8°W) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					4.[illegible]	---
01	---	---					5.4	---
02	---	---			---	---	6.4	---
03	---	(3.2)			---	---	6.5	(2.9)
04	(360)	(3.4)	---	---	120	---	5.8	(2.7)
05	(400)	(3.5)	270	---	110	1.9	5.0	(2.7)
06	45	(3.6)	250	3.1	110	2.1	6.4	(2.6)
07	440	(3.7)	250	3.4	110	2.2	4.2	2.6
08	(720)	(3.8)	220	3.5	110	2.4	4.9	(2.1)
09	(520)	(4.0)	220	3.7	110	(2.5)	4.4	(2.5)
10	G	<4.0	220	3.[illegible]	110	2.7		G
11	G	<3.9	210	3.8	110	2.7		G
12	5[illegible]0	(4.2)	220	3.8	110	2.8		(2.6)
13	560	4.0	220	3.8	110	2.7		2.4
14	(550)	(4.0)	230	3.8	110	(2.8)		(2.3)
15	(460)	(4.1)	220	3.8	120	(2.5)		(2.6)
16	360	4.2	240	3.6	110	2.4		3.0
17	330	4.2	250	3.4	120	2.1		3.0
18	300	4.1	250	---	120	1.9		3.1
19	270	3.9	---	---	130	---	3.2	3.0
20	270	(3.6)			---	---	4.3	(3.1)
21	(260)	(3.5)			---	---	5.5	(3.0)
22	(270)	(3.4)			---	---	4.9	(3.0)
23	(270)	(3.5)					5.1	---

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 21

Baker Lake, Canada (64.3°N, 96.0°W) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	3.0			---	---	3.0	2.9
01	240	2.8			---	---	3.1	2.9
02	270	2.9			---	---	3.7	2.9
03	260	2.8			---	---	4.0	2.9
04	270	2.8	---	---	---	1.5	3.0	2.9
05	260	2.9	---	---	100	1.8	3.0	3.0
06	270	3.2	220	3.0	100	1.9	2.8	3.0
07	300	3.6	200	3.2	100	2.2	3.6	2.9
08	(400)	(3.8)	200	3.5	100	2.5	4.0	(2.3)
09	(470)	(3.9)	200	3.8	100	2.8	3.2	(2.5)
10	440	(4.5)	200	3.8	100	2.9	4.1	(2.6)
11	420	4.4	210	3.9	100	3.0		(2.6)
12	440	4.6	220	3.9	100	3.0		2.6
13	420	4.7	220	3.9	100	2.9		2.7
14	400	4.8	210	3.9	100	3.0		2.7
15	400	4.9	210	3.8	100	2.9		2.8
16	380	4.7	210	3.7	100	2.7		2.8
17	380	4.6	210	3.5	100	2.4		2.8
18	300	4.2	220	3.2	100	2.2		2.9
19	250	4.0	230	2.9	100	1.8	2.6	3.0
20	240	3.9			100	1.7	4.7	2.9
21	240	3.7			---	---	3.7	2.9
22	240	3.6			---	---	3.7	2.9
23	230	3.2					4.8	2.9

Time: 90.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 22

Churchill, Canada (58.8°N, 94.2°W) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	3[illegible]0	2.9					5.8	(3.0)
01	300	2.7			---	---	5.3	---
02	290	2.8			---	---	4.0	(3.0)
03	310	3.0			120	2.0	3.9	(3.0)
04	340	2.9			120	2.2	3.5	2.8
05	300	3.0	---	---	120	2.2	3.1	(3.0)
06	330	3.5	---	---	120	3.0		G
07	G	3.7	---	---	120	3.4		G
08	G	4.0	250	3.8	110	3.0		2.3
09	560	4.0	240	3.9	110	3.0		2.4
10	(630)	4.0	230	4.0	110	3.0		G
11	700	4.2	220	4.0	110	3.1		2.2
12	540	4.3	230	4.0	110	3.1		2.4
13	470	4.5	240	4.0	110	3.2		2.5
14	480	4.6	230	4.0	120	3.1		2.6
15	420	4.7	240	3.9	120	3.1		2.7
16	4[illegible]0	4.6	250	3.8	110	2.9		2.8
17	360	4.5	250	3.6	120	2.7		2.[illegible]
18	300	4.3	270	3.4	120	2.6		3.0
19	300	3.9	---	---	120	2.9	3.4	3.0
20	320	3.6			120	2.7	4.0	3.0
21	300	3.4			120	2.5	5.6	2.9
22	300	3.3			---	---	6.0	2.8
23	3[illegible]0	3.0			---	---	6.[illegible]	(2.9)

Time: 90.0°W.
Sweep: 0.6 Mc to 20.0 Mc in 15 seconds.

Table 23

Prince Rupert, Canada (54.3°N, 130.6°W) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	2.0					1.3	2.7
01	360	2.1			---			2.7
02	360	1.9			---		1.7	2.7
03	340	2.2			---		1.[illegible]	2.6
04	350	1.9			---		1.7	2.7
05	320	2.0			---	---	2.0	2.7
06	280	2.8	---	---	120	1.7		2.8
07	460	3.3	240	3.2	110	2.2		2.4
08	(600)	3.6	220	3.5	110	2.[illegible]		2.2
09	(640)	3.8	210	3.7	110	2.7		2.1
10	G	3.9	200	3.8	110	2.[illegible]		G
11	G	4.0	200	3.9	110	3.0		G
12	510	4.2	200	4.0	110	3.0		2.4
13	500	4.4	200	4.0	100	3.0		2.3
14	480	4.4	210	4.0	110	3.0		2.5
15	420	4.5	220	4.0	110	2.9		2.5
16	400	4.5	220	3.8	110	2.8		2.7
17	360	4.4	230	3.6	110	2.5		2.8
18	270	4.4	240	---	110	2.2		3.0
19	260	4.2	---	---	140	1.8		3.0
20	260	3.6			---	E		2.9
21	280	3.0			---	---	2.0	2.8
22	290	2.3			---	---	1.1	2.8
23	320	2.1					2.0	2.8

Time: 120.0°W.
Sweep: 0.6 Mc to 20.0 Mc in 15 seconds.

Table 24

De Bilt, Holland (52.1°N, 5.2°E) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	3.0						2.9
01	295	2.8						2.9
02	290	2.5						3.0
03	290	2.4						3.0
04	285	2.2			---	---		3.0
05	250	3.2	---	---	120	1.7	2.5	3.2
06	235	3.7	220	---	110	2.1		3.3
07	600	4.0	210	3.7	105	2.5	2.5	3.2
08	380	4.5	200	3.9	100	2.7		3.0
09	320	5.0	200	4.1	100	3.0		3.2
10	320	5.1	200	4.2	100	3.1		3.2
11	305	5.8	200	4.2	100	3.1		3.2
12	310	5.7	200	4.3	100	3.1	2.5	3.2
13	310	5.8	200	4.3	100	3.1		3.2
14	305	5.7	210	4.2	100	3.0	3.0	3.2
15	300	5.6	210	4.1	105	2.9		3.2
16	290	5.8	215	3.9	105	2.6		3.2
17	280	5.7	225	3.4	110	2.2		3.2
18	250	5.6	250	---	120	1.8		3.2
19	245	5.6			---	1.6		3.2
20	240	5.0						3.1
21	250	4.0						3.0
22	270	3.6						2.9
23	285	3.3						2.9

Time: 0.0°.
Sweep: 1.4 Mc to 11.2 Mc in 6 minutes, automatic operation.

Table 25

Winnipeg, Canada (49.9°N, 97.4°W) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	340	2.3					3.4	2.8
01	340	2.4					3.1	(2.8)
02	340	2.5					4.0	2.7
03	340	2.5					3.4	2.7
04	320	2.4					3.9	2.8
05	320	2.5			---	---	2.2	2.9
06	260	3.1	---	---	120	2.0	2.2	3.1
07	(320)	3.4	220	3.5	120	2.2		(2.8)
08	600	3.8	220	3.6	110	2.4		2.4
09	650	4.0	220	3.8	110	2.8		G
10	G	< 4.0	220	4.0	110	3.0		G
11	560	4.2	200	4.0	110	3.2		2.4
12	500	4.3	200	4.0	110	3.2		2.6
13	500	4.4	210	4.0	110	3.1		2.6
14	480	4.4	230	4.0	110	3.0		2.6
15	450	4.6	220	4.0	110	3.0		2.7
16	420	4.6	230	3.9	110	2.8		2.8
17	360	4.8	240	3.7	120	2.5		2.9
18	320	4.3	250	3.2	120	2.2		3.0
19	280	4.0	---	---	130	1.8		3.0
20	260	3.8						2.9
21	270	3.2					3.0	3.0
22	290	2.9					3.2	2.9
23	340	2.4					3.2	2.8

Time: 90.0°W.
Sweep: 0.6 Mc to 20.0 Mc in 15 seconds.

Table 26

St. John's, Newfoundland ([illegible]7.6°N, [illegible].7°W) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	2.[illegible]					2.2	2.7
01	330	2.3					2.0	2.8
02	330	2.3					2.4	2.7
03	310	2.[illegible]					1.7	2.8
04	300	2.0					1.[illegible]	2.8
05	270	3.0	---	---	120	1.8		3.0
06	270	3.7	240	3.2	110	2.2		3.0
07	340	3.9	230	3.8	110	2.6		3.0
08	480	4.0	220	3.9	110	2.8		2.8
09	G	4.0	210	4.0	110	3.0		G
10	G	4.[illegible]	210	4.0	110	3.2		G
11	500	4.3	200	4.1	110	3.2		2.6
12	410	4.8	200	4.2	110	3.2		2.7
13	390	5.0	220	4.2	110	3.2		2.8
14	360	5.3	220	4.0	110	3.0		2.9
15	360	5.2	230	4.0	110	2.[illegible]		2.8
16	320	5.4	230	3.7	110	2.6		3.0
17	280	5.3	250	3.3	120	2.2		2.9
18	280	5.0	270	---	130	1.7		3.0
19	250	4.[illegible]	---	---	---	---		3.0
20	250	4.3						2.[illegible]
21	250	3.[illegible]						2.8
22	290	3.0						2.7
23	310	2.7						2.7

Time: 60.0°W.
Sweep: 0.6 Mc to 20.0 Mc in 15 seconds.

Table 27

Schwarzenburg, Switzerland (46.8°N, 7.3°E) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.6						3.1
01	300	3.5						3.1
02	300	3.0						3.1
03	300	2.9						3.1
04	290	2.8						3.1
05	280	2.8						3.2
06	230	3.5			---	---		3.5
07	220	4.0			100	2.2		3.6
08	235	4.6	200	3.8	100	2.6		3.5
09	300	5.0	200	4.0	100	2.8		3.5
10	300	5.4	200	4.2	100	3.0	3.6	3.3
11	310	5.6	200	4.3	100	3.0		3.4
12	310	5.5	200	4.5	100	3.0		3.3
13	310	6.0	200	4.5	100	3.1		3.4
14	300	6.2	200	4.4	100	3.0		3.4
15	300	6.2	200	4.2	100	3.0		3.4
16	300	6.0	210	4.1	100	2.8		3.5
17	260	6.2	215	4.0	100	2.5		3.4
18	240	6.0	---	---	100	2.0		3.5
19	230	6.2						3.5
20	230	5.9						3.5
21	230	5.0						3.4
22	260	4.2						3.2
23	300	3.8						3.1

Time: 15.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 28

Ottawa, Canada (45.4°N, 75.7°W) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	340	2.4						2.8
01	370	2.2					2.3	2.8
02	330	2.1					2.1	2.9
03	(360)	2.2					2.4	2.8
04	(330)	2.0						2.8
05	300	2.4			---	---		3.0
06	260	3.3			120	2.0		3.2
07	280	3.9	230	3.[illegible]	120	2.4		3.0
08	410	4.0	230	3.8	120	2.8		2.[illegible]
09	500	4.3	220	3.9	110	3.[illegible]		2.5
10	G	4.0	220	4.0	120	3.1		G
11	460	4.5	200	4.0	1[illegible]	3.2		2.[illegible]
12	480	4.6	220	4.1	120	3.2		2.[illegible]
13	430	4.[illegible]	220	4.2	120	3.2		2.7
14	420	4.9	230	4.[illegible]	120	3.1		2.[illegible]
15	390	5.0	230	4.0	120	3.0		2.8
16	380	5.1	240	3.9	120	2.[illegible]		2.9
17	330	5.2	250	3.7	12[illegible]	2.6		2.9
18	290	5.1	270	---	130	(2.1)		3.[illegible]
19	280	4.7			---	---		3.0
20	270	4.5						3.0
21	280	3.7						2.9
22	300	3.0						2.[illegible]
23	320	2.8						2.8

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 29

Cocoa, Florida (28.2°N, 80.6°W) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	3.8						2.8
01	300	3.6						2.8
02	290	3.4						2.8
03	290	3.4						2.9
04	290	3.2						2.9
05	290	3.0						2.8
06	280	3.8			140	1.6	2.4	3.1
07	280	5.0	250	---	120	2.1	2.8	3.2
08	300	5.6	230	3.8	120	2.5		3.2
09	320	5.8	220	4.2	120	2.7		3.0
10	360	5.8	220	4.4	120	(3.1)		2.9
11	360	6.4	220	4.5	120	(3.2)		2.8
12	370	7.3	220	4.6	110	(3.2)		2.8
13	330	7.7	240	4.6	120	3.3		2.8
14	330	7.8	230	4.5	120	3.3		2.9
15	330	7.6	240	4.4	120	3.2		3.0
16	310	7.6	240	4.2	120	2.9		3.0
17	290	7.4	240	3.7	120	2.5	3.6	3.1
18	270	7.0	260	---	130	1.8	3.2	3.1
19	250	7.1					2.6	3.1
20	240	5.6					2.0	3.1
21	260	4.3						2.8
22	(300)	3.9						2.7
23	(310)	4.0						2.7

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 30

Watheroo, W. Australia (30.3°S, 115.9°E) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	3.4					3.6	2.9
01	280	3.5					3.3	2.9
02	275	3.5					3.8	2.9
03	275	3.3					3.2	3.0
04	260	3.0					3.0	3.1
05	280	2.8					2.9	3.0
06	280	2.7					2.8	3.0
07	240	4.7	---	---		1.9	2.7	3.3
08	240	5.6	240	3.6		2.4	3.0	3.4
09	270	6.5	240	4.1		2.8	3.3	3.3
10	285	7.6	230	4.3		3.0	3.6	3.2
11	280	7.8	230	4.4		3.0	3.5	3.1
12	285	7.9	230	4.4		3.0	3.4	3.1
13	290	8.4	230	4.4		3.0	3.3	3.1
14	280	8.7	240	4.3		3.0	3.3	3.2
15	270	8.4	240	4.1		2.9	3.3	3.3
16	250	8.2	250	3.8		2.6	3.4	3.3
17	240	7.4	---	---		2.1	3.0	3.3
18	220	5.6					3.0	3.3
19	240	4.4					2.7	3.1
20	265	3.5					2.9	3.0
21	270	3.3					2.8	3.0
22	280	3.3					2.9	2.9
23	285	3.3					3.0	2.9

Time: 120.0°E.
Sweep: 16.0 Mc to 0.5 Mc in 15 minutes, automatic operation.

Table 31

Decepcion I. (63.0°S, 60.7°W) April 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	330	3.2						2.9
01								
02	320	3.1						2.9
03								
04	300	3.2						3.0
05								
06	250	3.0						3.4
07	230	3.5	---	---				3.3
08	220	5.0	---	---				3.5
09								
10	230	6.0	---	---				3.5
11								
12	230	6.8	---	---				3.5
13								
14	210	6.1	---	---				3.6
15								
16	220	5.7						3.5
17	230	5.6						3.4
18	220	5.6						3.4
19								
20	240	4.2						3.4
21								
22	300	3.3						3.0
23								

Time: 60.0°W.
Sweep: 1.5 Mc to 16.0 Mc in 15 minutes, manual operation.

Table 32

Resolute Bay, Canada (74.7°N, 94.9°W) March 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	3.4						2.9
01	290	3.4						2.9
02	290	3.2						2.8
03	290	3.0						2.8
04	290	3.2						2.9
05	290	3.0						3.0
06	280	3.6						2.9
07	280	3.5	---	---				3.0
08	280	3.8	240	3.0	---	---		3.0
09	280	3.9	240	3.2	180	2.0		3.0
10	280	3.9	240	3.4	220	2.4		3.0
11	280	4.0	240	3.5	---	---		3.0
12	340	4.0	240	3.4	---	---		2.9
13	260	4.0	240	3.3	---	---		3.0
14	300	4.0	250	3.0	120	2.4		2.9
15	310	4.0	240	3.0	---	---		3.0
16	280	4.5	240	3.0	---	---		3.0
17	270	3.9	---	---	---	---		3.0
18	280	4.0	---	---				3.0
19	280	3.8						3.0
20	280	3.8						2.9
21	280	3.5						2.8
22	280	3.7						2.9
23	290	3.5						2.9

Time: 90.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 33

Reykjavik, Iceland (64.1°N, 21.8°W) March 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	---					4.7	---
01	---	---					4.4	---
02	---	---					4.8	---
03	---	---					4.8	---
04	---	---					3.7	---
05	(290)	(2.4)					3.4	(2.9)
06	(280)	(2.4)			---	---		(3.1)
07	(270)	(3.2)	---	---	---	---		(3.2)
08	(280)	3.8	250	---	---	---		3.2
09	(290)	4.3	230	---	---	---		3.3
10	300	4.5	220	3.6	---	---		3.2
11	300	4.8	230	3.8	---	---		3.1
12	300	5.0	240	3.7	---	---		3.2
13	300	5.0	220	---	---	---		3.1
14	300	4.8	230	---	---	---		3.2
15	300	4.8	230	3.5	---	---		3.2
16	290	4.4	240	---	---	---		3.2
17	260	4.5	---	---	---	---		3.2
18	280	4.1			---	---	4.4	3.1
19	270	(3.9)					4.8	3.2
20	(260)	(3.7)					5.2	(3.1)
21	(290)	(3.4)					4.5	(3.1)
22	(310)	(3.3)					5.6	(3.0)
23	---	---					4.2	---

Time: 15.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 18 seconds.

Table 34

Fort Chimo, Canada (58.1°N, 68.3°W) March 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(290)	2.4			---	---	4.8	---
01	(280)	2.6			100	2.0	4.5	---
02	---	2.3			100	2.3	3.5	---
03	---	---			100	2.8	4.4	---
04	---	---			100	2.8	3.6	---
05	---	(3.2)			100	3.5		---
06	(320)	(3.5)	---	---	100	3.3		(3.0)
07	270	4.2	---	---	100	3.2		3.0
08	300	4.3	---	---	100	3.8		3.0
09	(340)	4.6	200	3.7	100	2.8		(3.0)
10	400	4.4	220	3.8	100	2.8		3.0
11	340	5.1	200	3.9	100	2.8		3.0
12	400	5.0	230	3.9	100	3.1		2.8
13	320	5.0	220	3.9	100	3.0		2.8
14	360	5.0	220	3.8	100	2.8		2.8
15	300	4.5	220	3.7	100	2.6		3.0
16	280	4.2	250	---	100	2.5		3.0
17	280	4.2			100	2.8	2.3	3.0
18	300	3.8			100	2.8	5.0	3.0
19	240	3.6			---	---	5.4	2.9
20	270	3.0			---	---	4.5	2.7
21	260	3.0			---	---	4.2	(2.9)
22	290	2.9			---	---	5.0	(2.7)
23	300	2.7			---	---	5.0	(2.8)

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 35

Lindau/Harz, Germany (51.6°N, 10.1°E) March 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	2.7					2.7	2.8
01	300	2.7					2.7	2.8
02	290	2.6					2.7	2.8
03	280	2.4					2.2	2.9
04	280	2.4					2.2	2.9
05	260	2.2					2.3	3.0
06	265	2.4	---	---			2.3	3.2
07	240	3.5	240	---	---	E	2.4	3.3
08	260	4.2	230	3.4	110	2.1	2.7	3.2
09	280	5.0	210	3.7	100	2.4	3.2	3.3
10	290	5.2	205	3.9	100	2.6	2.9	3.2
11	300	5.0	210	4.0	100	2.8	2.7	3.2
12	300	5.7	210	4.7	100	2.9	2.8	3.2
13	280	6.0	210	4.7	100	2.9		3.2
14	280	5.9	210	4.7	100	2.8		3.2
15	270	5.7	220	3.9	100	2.6	2.0	3.3
16	260	5.6	220	3.7	100	2.4	2.4	3.3
17	250	5.5	230	---	110	2.1	2.4	3.3
18	235	5.4	---	---	---	E	2.3	3.2
19	230	5.4					2.0	3.1
20	230	5.0					2.0	3.2
21	240	3.6					2.0	3.1
22	280	3.0					2.0	2.9
23	300	2.7					2.0	2.8

Time: 15.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 8 minutes.

Table 36

Rarotonga I. (21.3°S, 159.8°W) March 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	6.8					3.5	2.9
01	260	6.5					3.1	2.9
02	270	5.8					2.8	2.9
03	270	5.4					2.3	2.9
04	310	4.1						2.7
05	310	4.2						2.8
06	290	4.2			---	---		2.9
07	250	7.2	---	---	---	2.1	3.1	3.1
08	250	8.6	240	4.0	110	2.6	3.8	3.3
09	260	9.3	230	4.5	110	3.0	3.9	3.2
10	280	9.7	230	4.7	110	3.3	4.0	3.1
11	290	9.8	220	4.7	110	3.4	4.0	3.1
12	290	10.9	220	4.8	110	3.5	4.0	3.1
13	290	11.5	220	4.8	110	3.5	4.0	3.1
14	290	10.8	230	4.6	110	3.4		3.0
15	300	11.0	240	4.7	110	3.2	3.9	3.0
16	290	10.7	260	4.6	110	3.0	3.8	3.0
17	270	11.0	260	4.1	115	2.6	4.0	3.1
18	260	9.8			---	1.9	4.6	3.1
19	250	9.3					4.7	2.9
20	260	7.9					4.5	2.8
21	300	7.8					3.9	2.8
22	300	7.1					3.5	2.8
23	280	6.9					3.5	2.9

Time: 157.5°W.
Sweep: 2.0 Mc to 16.0 Mc, manual operation.

Table 37

Johannesburg, Union of S. Africa (26.2°S, 28.1°E) March 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	3.6						[illegible]
01	260	3.6						3.0
02	250	3.4						3.0
03	240	3.1						3.1
04	250	2.6						3.0
05	260	2.6						2.9
06	250	3.4			---	1.4		3.1
07	240	5.5	240	---	120	2.2		3.4
08	270	6.3	230	4.0	110	2.6	3.1	3.3
09	280	6.8	220	4.3	110	3.0	3.8	3.2
10	290	7.1	210	4.5	110	3.2	4.0	3.1
11	290	7.5	200	4.6	110	3.4	3.7	3.0
12	300	8.2	200	4.6	110	3.5	3.7	3.0
13	300	8.3	210	4.6	110	3.4	3.6	3.0
14	300	8.4	210	4.6	110	3.4	3.8	3.0
15	290	8.1	220	4.4	110	3.2	4.0	3.1
16	270	8.6	230	4.2	110	2.9	3.9	3.2
17	250	8.2	230	3.6	110	2.5	3.5	3.3
18	230	7.1	---	---	120	1.8	2.7	3.4
19	220	5.6			---	---	2.4	3.2
20	230	4.5					1.8	3.1
21	250	3.8					1.7	3.0
22	260	3.8					2.0	3.0
23	260	3.7						3.0

Time: 30.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 7 seconds.

Table 38

Watheroo, W. Australia (30.3°S, 115.9°E) March 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.6					3.0	[illegible]
01	270	3.5					3.2	2.9
02	270	3.5					[illegible]	2.9
03	265	3.4					3.0	3.0
04	270	3.2					3.2	2.9
05	270	2.8					3.0	2.9
06	270	3.3					3.0	3.0
07	260	4.4	230	3.0		2.0	3.0	3.2
08	270	5.5	235	3.7		2.6	3.3	3.3
09	280	6.2	220	4.0		2.9	3.3	3.2
10	300	6.5	210	4.2		3.0	3.3	3.1
11	310	7.2	220	4.2		3.2	3.2	3.1
12	300	7.6	220	4.3		3.2	3.3	3.1
13	280	[illegible]	220	4.3		3.2	3.3	3.1
14	250	8.3	220	4.3		3.2	3.3	3.1
15	280	8.0	230	4.1		3.0	3.3	3.1
16	270	7.1	230	3.8		2.8	3.2	3.2
17	260	6.3	230	3.3		2.5	3.3	3.3
18	230	6.3	---	---		2.2	3.0	3.3
19	230	5.0					3.0	3.1
20	250	4.2					2.8	3.0
21	270	3.8					2.9	2.9
22	270	3.8					3.0	2.8
23	270	3.6					3.0	2.9

Time: 120.0°E.
Sweep: 16.0 Mc to 0.5 Mc in 15 minutes, automatic operation.

Table 39

Capetown, Union of S. Africa (34.2°S, 18.3°E) March 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.2						3.0
01	280	3.1						2.9
02	280	3.0						2.9
03	270	3.0						3.0
04	260	3.0						3.0
05	260	2.9						2.9
06	260	2.6						2.9
07	240	4.2			---	1.7		3.3
08	250	5.3	240	3.4	120	2.2		3.3
09	280	6.0	230	4.0	110	2.7		3.2
10	300	6.0	220	4.2	110	3.0	3.8	3.0
11	310	6.7	210	4.4	110	3.1	3.8	3.0
12	320	7.5	200	4.6	110	3.2	3.8	2.9
13	310	8.3	210	4.5	110	3.3	3.5	2.9
14	300	8.0	210	4.5	110	3.3	3.6	2.9
15	290	8.2	220	4.4	110	3.2	3.6	3.0
16	280	8.1	220	4.1	110	3.0	3.4	3.1
17	270	7.8	230	3.9	110	2.8	3.1	3.2
18	240	6.8	240	3.1	120	2.2	2.7	3.3
19	230	6.0			---	1.7	2.0	3.3
20	230	4.6					1.7	3.2
21	250	3.9						3.1
22	260	3.5						3.0
23	270	3.3						3.0

Time: 30.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 7 seconds.

Table 40

Buenos Aires, Argentina (34.5°S, 58.5°W) March 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	5.0						2.8
01	300	4.9					2.3	2.9
02	280	5.0						2.9
03	260	4.4						3.1
04	280	3.8						3.0
05	290	3.3						3.0
06	260	4.8						3.2
07	240	6.0	---	---	---	---		3.3
08	270	7.3	230	---	100	2.8	3.6	3.3
09	280	7.5	(220)	---	100	3.0	4.2	3.2
10	300	8.9	(220)	---	---	3.2	4.8	3.1
11	300	10.0	210	---	---	---	5.0	3.1
12	300	10.4	---	---	---	---	5.0	3.1
13	300	11.6	---	---	---	---	5.4	3.1
14	280	11.2	---	---	---	---	4.7	3.1
15	270	10.7	220	---	---	---	4.2	3.2
16	260	10.6	(240)	---	---	---		3.3
17	250	9.6	240	---	---	---	3.7	3.4
18	220	9.2						3.4
19	220	6.6						3.3
20	270	5.6						3.0
21	300	5.2						2.9
22	300	5.2						2.8
23	310	5.0						2.8

Time: 60.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 41

Christchurch, New Zealand (43.6°S, 172.7°E) March 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.9					2.7	2.8
01	280	3.5					2.6	2.9
02	280	3.3					2.8	2.9
03	280	2.6					3.0	3.0
04	280	2.4					3.2	3.0
05	280	1.8				---	3.3	3.1
06	280	2.7	---	---		1.4	3.0	3.2
07	250	4.4	260	3.4		1.9	3.0	3.2
08	290	5.0	250	3.8		2.4		3.1
09	300	5.5	230	4.0		2.7	4.2	3.2
10	300	6.1	230	4.3		2.9	4.6	3.1
11	300	6.5	210	4.3		3.0	3.7	3.1
12	300	6.9	230	4.4		3.2	3.9	3.1
13	300	6.9	230	4.4		3.2		3.1
14	290	7.0	230	4.3		3.1		3.2
15	280	6.8	230	4.2		2.9	4.2	3.2
16	270	6.3	240	3.7		2.6	3.5	3.2
17	260	6.2	250	3.4		2.2	2.9	3.1
18	250	6.2	---	---		1.6	2.7	3.1
19	250	6.2				---	2.7	3.0
20	260	5.9					3.3	2.9
21	260	5.2					3.5	2.9
22	270	4.7					3.3	2.9
23	280	4.2					2.8	2.9

Time: 172.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 42

Decepcion I. (63.0°S, 60.7°W) March 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01	280	4.1						3.0
02								
03	(270)	(3.4)						---
04								
05	250	4.2						3.4
06	250	4.2						3.3
07	240	4.6	---	---				3.4
08								
09	230	5.8	200	---			2.0	3.5
10								
11	250	6.2	220	---			3.0	3.5
12								
13	240	6.2	200	---				3.5
14								
15	230	5.8	200	---				3.6
16								
17	240	5.7	200	---				3.5
18	220	5.7	---	---				3.5
19	230	5.8						3.4
20								
21	240	5.1						3.2
22								
23	260	4.4						3.1

Time: 60.0°W.
Sweep: 1.5 Mc to 16.0 Mc in 15 minutes, manual operation.

Table 43

Formosa, China (25.0°N, 121.5°E) — February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	3.8						3.0
01	290	3.9						3.1
02	295	3.7						3.1
03	285	3.3						3.2
04	280	2.8						3.2
05	350	2.8						2.8
06	345	2.9						2.8
07	280	5.3	---	---	---	---		3.1
08	280	7.4	250	4.4	150	3.2	3.2	3.3
09	290	8.8	250	4.4	140	3.5	3.7	3.2
10	280	9.9	230	4.6	120	3.7	3.8	3.4
11	290	11.2	230	4.7	120	3.7	4.4	3.3
12	280	11.5	220	4.7	120	3.8	4.4	3.3
13	280	13.0	230	4.6	120	---	4.2	3.3
14	280	13.6	230	4.7	120	---	3.9	3.3
15	270	13.1	230	4.6	120	---	3.9	3.2
16	265	11.5	240	4.3	120	---	3.7	3.4
17	240	10.7	220	3.6	120	---	3.0	3.5
18	240	8.8	---	---	---	---		3.4
19	240	8.0			---	---		3.3
20	240	7.2						3.1
21	260	6.0						3.0
22	270	5.1						2.9
23	300	4.5						2.9

Time: 120.0°E.
Sweep: 2.3 Mc to 14.5 Mc in 15 minutes, manual operation.

Table 44

Panama Canal Zone (9.4°N, 79.9°W) — February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	3.9					3.0	3.0
01	250	3.8					3.0	3.1
02	230	3.4					3.1	3.2
03	240	2.6					3.9	3.1
04	270	2.4					3.8	2.8
05	290	2.5					3.9	2.8
06	290	2.9					3.0	2.7
07	260	5.2	---	---	170	2.0	2.8	3.2
08	270	7.0	240	---	120	(2.5)	3.6	3.1
09	290	8.6	230	(4.3)	110	3.0	4.1	2.9
10	300	10.4	220	4.6	110	3.2	4.2	3.0
11	300	10.2	220	4.8	110	3.4	4.1	3.0
12	320	10.2	210	4.8	110	3.5	4.2	2.8
13	320	10.6	220	4.8	110	3.5	4.2	2.8
14	330	11.2	220	(4.8)	110	3.4	3.5	2.8
15	320	11.8	230	(4.7)	110	3.2	4.1	2.8
16	290	12.0	230	(4.3)	110	(3.0)	4.0	3.0
17	260	11.1	< 240	---	(120)	2.6	4.3	3.1
18	240	9.5			---	---	4.2	3.1
19	230	7.4					3.9	3.1
20	230	5.3					3.4	3.1
21	240	4.0					3.0	2.8
22	290	(3.8)					2.7	(2.6)
23	290	(3.7)					2.9	2.8

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 45

Townsville, Australia (19.3°S, 146.8°E) — February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	265	6.1					2.6	3.0
01	250	5.9					3.0	3.1
02	240	5.2					3.0	3.0
03	250	4.5					2.3	3.1
04	250	4.0						3.1
05	250	3.6						3.0
06	250	3.8			---	1.3	2.4	3.1
07	230	5.1	---	---	100	2.2	3.5	3.3
08	250	5.6	200	3.8	100	2.6	4.2	3.2
09	300	7.0	200	4.4	100	---	4.7	3.1
10	300	8.5	205	4.5	110	3.3	4.4	3.1
11	330	8.4	210	4.6	100	3.5	4.9	3.0
12	330	9.5	200	4.6	100	3.6	4.6	3.0
13	310	9.8	---	4.5	100	3.6	4.6	3.0
14	300	10.2	200	4.5	100	3.5	4.8	3.0
15	275	10.3	220	4.4	100	3.3	4.5	3.2
16	270	9.4	220	4.4	110	3.0	4.6	3.2
17	250	8.2	225	3.8	110	2.6	4.2	3.2
18	250	7.4	230	---	---	2.1	3.9	3.2
19	240	6.4			---	---	3.2	3.1
20	255	6.2					2.7	3.0
21	270	(5.6)					3.4	(3.0)
22	290	5.7						2.9
23	275	6.3						2.8

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 46

Rarotonga I. (21.3°S, 159.8°W) — February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	7.8					4.1	2.8
01	260	7.3					3.1	2.9
02	280	6.5					3.5	2.8
03	300	5.7					2.8	2.7
04	310	5.3					2.4	2.8
05	280	5.3					2.7	2.8
06	280	5.4			---	E	2.8	2.9
07	250	7.0	---	---	---	2.2	3.6	3.1
08	260	8.0	240	4.4	110	2.8	4.5	3.1
09	300	9.0	230	4.6	110	3.1	4.6	3.0
10	300	9.5	220	4.8	110	3.4	4.5	2.8
11	320	10.8	210	5.0	110	3.5	4.4	2.9
12	320	11.8	210	4.9	110	3.6	4.3	2.9
13	310	12.5	230	5.0	110	3.6	4.0	3.0
14	300	12.7	210	4.8	110	3.5		3.0
15	290	11.8	230	4.7	110	3.4	3.3	3.0
16	290	10.8	250	4.5	115	3.2	3.5	3.0
17	280	9.5	250	4.3	120	2.8	4.1	3.0
18	250	8.8	---	---	---	2.2	4.2	3.0
19	270	8.3					4.2	2.9
20	290	8.2					4.2	2.7
21	320	8.1					4.2	2.7
22	310	7.8					3.7	2.7
23	300	7.6					3.6	2.8

Time: 157.5°W.
Sweep: 2.0 Mc to 16.0 Mc, manual oporation.

Table 47

Brisbane, Australia (27.5°S, 153.0°E) — February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	5.8					3.8	2.9
01	250	5.5					3.3	3.0
02	250	4.9					3.0	3.0
03	270	4.4					2.6	2.9
04	270	4.0						3.0
05	270	3.9						3.0
06	250	4.7	230	3.0	130	2.1		3.2
07	270	5.2	230	4.0	110	---	2.5	3.2
08	310	6.0	230	4.2	110	3.0	4.3	3.0
09	320	6.6	210	4.5	100	---	4.3	3.0
10	300	6.8	200	4.6	110	3.5	4.4	3.0
11	320	6.8	220	4.7	100	---	5.5	3.0
12	320	7.8	210	4.8	100	---	4.2	3.0
13	330	7.9	200	4.7	100	3.7	4.4	2.9
14	300	7.8	220	4.6	100	3.5	4.2	3.0
15	290	7.2	220	4.6	100	3.3	4.3	3.1
16	300	7.0	220	4.4	100	3.0	3.8	3.0
17	280	6.9	240	4.0	110	2.7	3.6	3.1
18	250	6.8	---	2.8	130	1.7	3.1	3.1
19	250	6.6					3.2	3.0
20	250	6.0					3.2	2.8
21	290	5.9					3.6	2.8
22	300	5.8					3.4	2.8
23	290	5.8					4.0	2.8

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 48

Buenos Aires, Argentina (34.5°S, 58.5°W) — February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	6.0					3.1	2.8
01	290	6.2					2.8	2.9
02	280	6.0					2.8	2.9
03	280	5.4					2.3	2.9
04	300	4.7					2.4	2.9
05	300	4.6						2.8
06	260	5.4			---	2.0	2.8	3.2
07	260	5.9	230	---	---	2.6	3.4	3.1
08	300	6.3	230	---	(110)	3.0	4.0	3.0
09	330	7.0	220	---	---	---	4.0	2.8
10	350	8.4	210	---	---	---	4.3	2.8
11	360	9.3	200	---	---	---		2.8
12	350	10.2	210	---	---	---	4.4	2.9
13	320	10.8	200	---	---	---	4.0	2.9
14	300	11.7	210	---	---	---	3.3	3.0
15	290	11.5	220	---	---	---		3.1
16	280	10.8	220	---	---	---	3.3	3.2
17	270	10.1	230	---	---	---	3.0	3.2
18	270	9.2	250	---			2.8	3.2
19	260	8.7					3.0	3.1
20	270	7.5					2.6	3.0
21	300	6.7						2.8
22	330	6.2						2.8
23	350	6.0						2.8

Time: 60.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 49

Hobart, Tasmania (42.8°S, 147.4°E) — February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	4.5						2.8
01	270	3.8						2.8
02	260	3.5					3.0	2.9
03	260	3.0					3.1	2.9
04	260	2.6					3.0	2.9
05	270	2.5					2.7	3.0
06	250	3.5			110	2.0	2.1	3.1
07	250	4.5	---	---	100	2.5		3.1
08	320	4.8	230	4.4	100	2.9		3.0
09	360	5.0	210	4.4	100	3.1		2.9
10	360	5.5	200	4.5	100	3.3		2.8
11	350	6.0	200	4.5	100	3.5	3.3	2.9
12	360	6.0	205	4.5	100	3.5	3.7	2.9
13	355	6.0	210	4.5	100	3.5	3.7	2.8
14	350	5.8	210	4.5	100	3.5		2.8
15	350	6.0	210	4.5	100	3.5		2.9
16	320	6.0	210	4.5	100	3.2		3.0
17	290	6.0	220	4.3	100	2.9		3.0
18	250	6.5	---	---	100	2.4		3.0
19	250	6.5			120	1.6	4.0	3.0
20	235	6.3					4.0	3.0
21	250	5.9					4.7	2.9
22	250	5.0					3.5	2.9
23	250	4.5						2.8

Time: 150.0°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 50

Christchurch, New Zealand (43.6°S, 172.7°E) — February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	5.0					2.8	2.8
01	270	4.5					2.8	2.8
02	280	4.0					2.8	2.9
03	300	3.5					3.2	2.8
04	290	3.1					3.1	2.9
05	270	3.0				1.2	3.2	3.1
06	260	4.0	---	---		1.5	3.4	3.2
07	280	4.8	250	3.8		2.3	3.9	3.2
08	340	5.3	230	4.2		2.7	4.7	3.1
09	300	5.9	220	4.4		3.0	5.3	3.2
10	330	6.0	220	4.5		3.1	6.2	3.1
11	340	6.3	220	4.6		3.3	5.5	3.0
12	320	6.6	230	4.7		3.5	6.5	3.0
13	320	6.6	220	4.7		3.4	4.5	3.1
14	320	6.7	220	4.5		3.3		3.0
15	330	6.4	230	4.5		3.2	4.4	3.0
16	300	6.5	240	4.3		3.0		3.0
17	300	6.6	240	4.0		2.7	3.4	3.0
18	280	6.7	250	(3.6)		2.2	2.6	3.0
19	260	7.0	---	---		1.4	3.7	3.0
20	260	7.0					4.1	2.9
21	270	6.4					4.2	2.8
22	270	5.9					3.5	2.8
23	280	5.5					3.0	2.8

Time: 172.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 51

Decepcion I. (63.0°S, 60.7°W) — February 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01	280	5.4					3.0	3.1
02								
03	(300)	(3.8)						(3.2)
04								
05	260	5.0	---	---				3.3
06	230	5.4	---	---			3.0	3.3
07	250	5.4	200	---			3.0	3.4
08								
09	280	6.0	---	---			4.0	3.4
10								
11	280	6.1	---	---			4.2	3.2
12								
13	250	6.0	200	---			3.5	3.4
14								
15	270	6.0	220	---			3.0	3.4
16								
17	250	5.7	220	---			2.0	3.4
18								
19	250	5.9	---	---				3.4
20	250	5.5						3.4
21	250	5.8						3.2
22								
23	260	5.8						3.2

Time: 60.0°W.
Sweep: 1.5 Mc to 16.0 Mc in 15 minutes, manual operation.

Table 52

Delhi, India (28.6°N, 77.1°E) — January 1952

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2 **
00	310	2.8						
01	---	(2.7)						(3.2)
02	---	---						
03	---	---						
04	260	2.9						
05	280	3.2						3.6
06	270	3.4						
07	240	4.6						
08	240	6.5						
09	240	7.7						3.7
10	250	8.0						
11	260	8.7						
12	280	9.2						
13	260	9.0						(3.5)
14	260	8.8						
15	260	8.6						
16	250	8.3						
17	240	6.8						(3.6)
18	260	5.3						
19	280	4.9						
20	260	4.4						
21	280	3.9						(3.6)
22	280	3.4						
23	300	3.1						

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 53

Bombay, India (19.0°N, 73.0°E) — January 1952

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2 **
00								
01								
02								
03								
04								
05								
06								
07	240	5.9						
08	270	8.2						
09	300	8.9						3.5
10	300	9.6						
11	330	10.4						
12	360	11.2						
13	390	11.9						3.0
14	390	12.4						
15	390	12.8						
16	360	12.8						
17	330	12.4						3.0
18	330	12.0						
19	330	10.6						
20	315	10.2						3.2
21	300	8.7						
22	270	7.8						3.5
23	270	7.4						

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 54

Madras, India (13.0°N, 80.2°E) — January 1952

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2 **
00								
01								
02								
03								
04								
05								
06								
07	330	6.2						(2.9)
08	360	7.8						
09	390	9.3						
10	420	9.5						
11	420	9.3						(2.5)
12	450	9.0						
13	480	9.2						
14	460	9.4						
15	450	9.7						(2.5)
16	450	9.8						
17	450	9.8						
18	420	9.4						
19	420	9.2						(2.7)
20	390	8.8						
21	390	8.6						
22	360	7.6						
23								

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 55

Tiruchy, India (10.8°N, 78.8°E) — January 1952 **

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	300	5.0						
07	360	5.7						
08	390	7.5						(2.9)
09	450	8.7						
10	450	9.0						
11	480	8.8						
12	510	8.9						(2.4)
13	530	8.9						
14	520	9.1						
15	480	9.2						
16	480	9.1						(2.5)
17	480	9.0						
18	480	8.8						
19	450	8.3						
20	440	8.2						(2.7)
21	425	7.6						
22	420	7.6						(2.8)
23								

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
* Height at 0.83 foF2.
** Average values; other columns, median values.

Table 56

Townsville, Australia (19.3°S, 146.8°E) — January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	7.4					2.8	3.0
01	250	6.2					2.5	3.0
02	270	6.0					2.6	2.9
03	260	5.2						3.0
04	265	4.8						2.9
05	240	4.0						3.0
06	250	4.1	---	---	140	1.6	3.2	3.2
07	250	4.7	230	3.7	110	2.4	3.8	3.2
08	390	5.6	220	4.3	110	3.0	4.4	2.9
09	380	6.0	220	4.5	110	3.2	4.6	2.8
10	385	7.0	210	4.7	110	3.4	5.0	2.7
11	350	8.4	210	4.7	110	3.6	5.8	2.8
12	350	8.8	230	4.8	110	3.8	5.7	2.8
13	345	9.8	220	4.7	110	3.7	5.2	2.9
14	300	9.6	220	4.7	110	3.6	5.0	2.9
15	300	9.6	210	4.5	110	3.4	4.6	3.1
16	290	9.0	220	4.4	110	3.2	5.5	3.1
17	275	8.0	220	4.1	110	2.8	4.3	3.1
18	250	7.2	240	---	110	2.2	3.8	3.0
19	260	6.6			---	---	3.2	2.9
20	300	(6.6)					3.0	(2.8)
21	300	7.0					3.0	2.8
22	300	(7.3)					3.6	(2.9)
23	280	6.9					3.6	2.9

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 57

Buenos Aires, Argentina (34.5°S, 58.5°W) — January 1952

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	7.3					3.5	2.8
01	290	6.6					3.0	2.9
02	290	6.5					3.0	2.9
03	280	6.0					2.5	2.8
04	280	5.6					2.0	2.9
05	270	5.7					2.0	2.9
06	250	6.1	---	---	100	2.4	3.3	3.1
07	280	6.1	220	---	100	2.8	4.0	3.1
08	320	6.4	210	---	---	---	4.0	2.9
09	370	6.8	200	---	---	---	4.4	(2.7)
10	400	8.3	200	4.9	---	---	4.3	(2.7)
11	380	9.4	200	4.8	---	---		2.7
12	370	10.1	200	5.0	---	---	4.6	2.8
13	360	10.6	200	4.8	---	---	4.6	2.8
14	330	11.4	200	4.8	---	---	4.2	2.9
15	300	11.5	210	---	---	---	4.4	3.1
16	290	11.4	200	---	---	---	4.2	3.2
17	270	10.6	220	---	---	---	4.8	3.2
18	270	8.7	230	---			4.6	3.1
19	270	8.2					4.8	3.0
20	280	8.1					3.5	2.9
21	300	7.6					3.9	2.7
22	320	7.4					3.5	2.7
23	300	7.4					3.3	2.7

Time: 60.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 58

Delhi, India (28.6°N, 77.1°E) — December 1951 **

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	2.9						3.1
01	320	3.0						
02	(280)	(2.9)						
03	---	---						
04	300	2.7						3.2
05	300	3.0						
06	280	3.4						
07	260	6.0						
08	240	7.6						3.6
09	240	8.3						
10	260	9.0						
11	260	8.8						
12	270	10.2						3.4
13	270	9.7						
14	270	9.1						
15	270	8.8						
16	260	9.0						3.5
17	260	7.2						
18	260	6.0						
19	270	5.2						
20	250	4.4						3.5
21	260	3.3						
22	280	2.8						
23	300	2.8						

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
* Height at 0.83 foF2.
** Average values; other columns, median values.

Table 59

Bombay, India (19.0°N, 73.0°E) — December 1951 **

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06								
07	300	6.8						
08	300	9.2						3.3
09	330	10.2						
10	330	10.6						
11	360	11.4						
12	360	12.0						2.8
13	390	12.8						
14	390	13.4						
15	390	13.8						
16	390	13.8						(3.0)
17	340	13.0						
18	330	11.9						
19	330	10.8						
20	330	10.2						(3.0)
21	300	8.9						
22	300	8.3						(3.2)
23	300	7.7						

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
* Height at 0.83 foF2.
** Average values; other columns, median values.

Table 60

Madras, India (13.0°N, 80.2°E) — December 1951 **

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06								
07	360	6.6						
08	360	8.2						(2.9)
09	390	9.4						
10	390	9.6						
11	420	9.6						
12	420	9.8						(2.7)
13	450	9.9						
14	450	10.4						
15	450	10.6						
16	450	10.8						(2.6)
17	450	10.8						
18	450	10.4						
19	420	10.0						
20	420	9.5						(2.7)
21	390	8.6						
22	(360)	(8.5)						
23								

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
* Height at 0.83 foF2.
** Average values; other columns, median values.

Table 61

Tiruchy, India (10.8°N, 78.8°E) December 1951

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2 **
00								
01								
02								
03								
04								
05								
06	360	5.7						
07	360	7.0						
08	420	8.8						(2.6)
09	450	9.2						
10	480	9.4						
11	480	9.4						
12	510	9.4						(2.3)
13	510	9.6						
14	540	9.6						
15	---	---						
16	(540)	(10.0)						(2.3)
17	540	9.6						
18	510	9.3						
19	480	9.1						
20	480	8.9						(2.5)
21	450	8.6						
22	420	8.6						
23								

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 62

Buenos Aires, Argentina (34.5°S, 58.5°W) December 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	7.4					4.1	2.9
01	280	7.2					4.2	2.9
02	270	6.6					3.4	3.0
03	280	6.2					3.0	2.9
04	300	5.8					2.2	2.8
05	250	5.8			---	---	2.4	3.0
06	230	6.8	---	---	100	2.5	3.6	3.0
07	(280)	7.0	220	---	100	3.0	4.0	2.9
08	360	8.0	210	---	100	3.2	4.4	2.7
09	380	[illegible]	210	---	---	---	3.8	2.7
10	380	9.3	200	4.9	---	---	4.6	2.7
11	380	10.0	200	---	---	---		2.8
12	360	10.7	200	---	---	---	4.7	2.9
13	330	11.0	200	4.9	---	---	4.8	2.9
14	320	11.0	200	4.8	---	---		3.0
15	300	11.0	210	---	---	---		3.0
16	3[illegible]0	10.8	220	---	---	---	3.9	3.1
17	280	10.7	220	---	---	---	3.6	3.1
18	270	9.5	250	---			3.5	3.1
19	270	8.6					3.0	3.0
20	280	7.8						(2.9)
21	310	7.4					3.4	(2.7)
22	330	7.2					3.2	(2.7)
23	310	7.2					3.2	2.8

Time: 60.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 63

Delhi, India (28.6°N, 77.1°E) November 1951

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2 **
00	300	3.0						(3.3)
01	300	2.8						
02	---	---						
03	---	---						
04	280	3.3						(3.4)
05	280	3.5						
06	280	4.0						
07	260	7.0						
08	260	9.3						(3.2)
09	260	9.6						
10	260	10.4						
11	270	10.7						
12	280	10.8						(3.4)
13	280	11.0						
14	280	10.2						
15	280	10.0						
16	260	9.5						(3.4)
17	260	9.1						
18	260	6.9						
19	280	5.9						
20	270	4.4						(3.5)
21	280	4.1						
22	290	3.2						
23	300	3.0						

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 64

Bombay, India (19.0°N, 73.0°E) November 1951

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2 **
00								
01								
02								
03								
04								
05								
06								
07	270	7.7						
08	300	9.8						(3.1)
09	330	10.4						
10	360	11.5						
11	390	11.9						
12	420	12.9						(2.7)
13	420	13.7						
14	(420)	14.6						
15	---	(14.8)						
16	---	(15.0)						
17	(330)	(15.1)						
18	(330)	(15.0)						
19	360	13.9						
20	360	12.9						(2.9)
21	340	11.7						
22	330	10.2						(3.1)
23	330	9.6						

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 65

Dakar, French West Africa (14.6°N, 17.4°W) November 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	242	14.4						---
01	230	(10.6)						(3.4)
02	225	(7.9)						(3.5)
03	218	4.7						3.2
04	250	3.4						3.1
05	272	2.8						3.0
06	280	4.8			---	1.5	2.6	3.0
07	250	9.0	250	---	115	2.4		3.3
08	275	11.2	235	---	109	2.9	3.7	3.3
09	280	13.3	222	4.7	108	3.2	4.0	3.3
10	275	14.0	215	5.0	107	3.5	4.3	3.0
11	285	13.2	210	5.0	105	3.6	4.0	2.9
12	282	13.6	200	4.8	103	3.6	4.2	2.9
13	300	13.0	210	---	105	3.6	4.1	2.8
14	300	13.0	228	---	105	3.3	3.8	2.8
15	(285)	13.2	238	---	107	3.1	4.1	2.8
16	---	13.1	240	---	111	2.7	3.7	2.8
17	260	13.0	---	---	133	2.0	3.7	(3.0)
18	282	13.0					3.0	2.9
19	288	13.6					2.0	(2.8)
20	245	14.0					2.4	---
21	240	12.6					2.9	---
22	250	>13.2					2.1	---
23	250	>13.0						---

Time: Local.
Sweep: 1.25 Mc to 20.0 Mc in 10 minutes, automatic operation.

Table 66

Madras, India (13.0°N, 80.2°E) November 1951

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2 **
00								
01								
02								
03								
04								
05								
06								
07	360	7.[illegible]						(2.7)
08	390	9.4						
09	400	10.4						
10	420	10.4						
11	420	10.4						(2.4)
12	480	10.6						
13	480	10.[illegible]						
14	480	11.4						
15	480	11.8						(2.3)
16	480	12.0						
17	480	11.8						
18	480	11.4						
19	450	10.8						(3.0)
20	420	10.5						
21	420	(10.0)						
22	390	(9.4)						
23								

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.
**Average values; other columns, median values.

Table 67

Tiruchy, India (10.8°N, 78.8°E) — November 1951

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2 **
00								
01								
02								
03								
04								
05								
06	360	6.2						
07	420	8.4						(2.7)
08	450	10.0						
09	500	10.2						
10	520	10.4						
11	510	10.4						(2.3)
12	540	10.6						
13	540	10.9						
14	540	11.1						
15	540	11.3						(2.2)
16	540	11.2						
17	540	11.1						
18	540	10.7						
19	540	10.4						(2.2)
20	540	10.0						
21	540	10.0						
22	480	9.5						
23								

Time: Local.
Sweep: 1.8 Mc to 16.0 Mc in 5 minutes, manual operation.
***Height at 0.83 foF2.**
****Average values; other columns, median values.**

Table 68

Tananarive, Madagascar (18.8°S, 47.8°E) — November 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	245	8.2					3.1	3.2
01	240	(6.2)					2.8	(3.1)
02	260	(5.6)					2.4	(2.8)
03	262	(5.0)					2.4	3.0
04	270	4.8					2.4	3.0
05	280	4.6					2.4	(3.0)
06	(240)	(5.8)	---	---	110	2.2	3.9	---
07	---	7.7	230	---	111	2.9	4.8	2.9
08	295	8.8	220	4.8	109	3.4	4.2	2.9
09	300	9.8	210	5.0	109	3.7	4.6	2.9
10	318	9.7	220	5.3	109	3.8	4.4	2.8
11	310	10.3	210	5.4	111	4.0	4.2	2.3
12	328	10.8	210	5.2	111	4.0	4.2	2.8
13	320	10.8	215	5.2	111	4.0	4.1	2.8
14	310	10.6	220	5.0	111	3.8	4.1	2.9
15	302	10.2	228	5.0	111	3.5	4.2	2.9
16	308	9.8	225	4.8	109	3.2	3.5	2.9
17	(278)	9.8	230	---	111	2.6	4.0	2.9
18	250	9.5			---	---	3.5	2.9
19	252	9.5					3.1	(2.8)
20	250	8.5					3.3	(2.9)
21	260	8.8					3.2	2.9
22	265	8.4					3.2	2.9
23	270	8.4					3.3	2.9

Time: Local.
Sweep: 1.25 Mc to 20.0 Mc in 10 minutes, automatic operation.

Table 69

Buenos Aires, Argentina (34.5°S, 58.5°W) — November 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	8.4					2.8	2.9
01	290	8.2					2.3	2.9
02	270	8.0					2.4	2.9
03	290	7.3					2.2	3.0
04	260	7.0						3.0
05	260	6.8			---	---	2.4	3.0
06	230	7.5	---	---	---	---	3.1	3.0
07	240	8.0	220	---	---	---	3.5	2.9
08	300	8.8	220	---	---	---	4.0	2.8
09	310	10.1	230	---			4.8	2.8
10	320	10.6	230	---			4.9	2.8
11	320	11.0	220	---			4.0	2.8
12	330	11.4	220	---				2.8
13	330	12.0	230	(5.0)			4.6	2.9
14	300	12.8	230	---			4.3	3.0
15	280	12.9	240	---			3.8	3.2
16	270	12.5	230	---			4.1	3.2
17	270	11.8	230	---			3.5	3.2
18	260	10.3					3.2	3.1
19	280	8.7					3.4	3.0
20	300	(8.5)					3.0	2.8
21	320	(8.3)					3.2	2.7
22	310	8.8						2.7
23	310	8.5					2.8	2.7

Time: 60.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 70

Domont, France (49.0°N, 2.3°E) — July 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	245	5.3						2.9
01	250	4.8						2.9
02	260	4.5						2.9
03	260	4.0						2.9
04	280	4.0	250	---	100	1.7	2.8	3.0
05	300	4.8	210	---	100	2.0	2.9	3.2
06	265	5.5	200	3.8	100	2.5	3.5	3.2
07	300	5.8	200	4.0	100	2.8	4.2	3.1
08	320	5.7	200	4.1	100	3.1	4.2	3.0
09	300	6.2	200	4.3	90	3.2	4.3	3.1
10	305	5.8	200	4.4	90	3.2	3.8	3.1
11	310	6.4	190	4.7	90	3.2	3.8	3.1
12	335	6.2	190	4.5	90	3.2	3.8	3.2
13	320	6.0	185	4.4	90	3.2	3.8	3.2
14	310	6.3	200	4.8	100	3.2	3.7	3.2
15	315	6.2	200	4.4	100	3.2	3.8	3.0
16	300	6.2	200	4.3	100	3.1	3.6	3.1
17	300	6.6	200	4.0	100	2.8	4.0	3.2
18	280	6.4	200	---	100	2.5	3.7	3.1
19	250	7.0	225	---	100	1.8	3.7	3.2
20	230	7.0	---	---	100	1.6	3.0	3.2
21	225	7.0					3.0	3.1
22	230	6.5						3.2
23	230	5.8					2.7	3.0

Time: 0.0°.
Sweep: 1.5 Mc to 16.0 Mc in 1 minute 30 seconds.

Table 71

Poitiers, France (46.6°N, 0.3°E) — July 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	305	5.6						---
01	320	5.3						---
02	320	5.2						---
03	310	4.6						---
04	320	4.4						(2.9)
05	300	4.8						(3.0)
06	285	5.4	230	3.8				(3.2)
07	310	5.6	220	4.2			4.2	(3.0)
08	330	6.0	220	4.3			4.8	(3.0)
09	330	6.8	220	4.6			4.6	3.1
10	315	6.7	220	4.6			4.4	3.0
11	330	6.8	210	4.8			4.3	2.9
12	330	6.3	210	4.7			4.9	(3.0)
13	350	6.3	220	4.7			4.2	3.1
14	330	6.7	220	4.7			4.0	3.0
15	330	6.5	220	4.6			4.0	3.0
16	320	6.4	230	4.4			4.2	3.0
17	320	6.7	230	4.2			4.4	2.9
18	300	6.6	---	---			3.9	(3.1)
19	270	7.1						(3.1)
20	250	7.5					3.8	---
21	270	7.1						---
22	280	6.6						---
23	280	6.2						---

Time: 0.0°.
Sweep: 3.1 Mc to 11.8 Mc in 1 minute 15 seconds.

Table 72

Terre Adelie (66.8°S, 141.4°E) — July 1951

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	3.6					2.7	
01	250	4.4	245		125		2.5	
02	250	4.7	240		140			
03	260	4.8	240					
04	260	5.0	250					
05	250	4.4					2.4	
06	260	4.8						
07	260	4.5					1.9	
08	260	4.2					2.8	
09	250	4.5					3.0	
10	250	3.8					3.0	
11	250	3.9					3.1	
12	250	3.5						
13	260	3.5					2.0	
14	270	3.0						
15	290	2.8						
16	295	2.6						
17	300	2.6					2.9	
18	300	2.8					3.0	
19	290	(2.5)					2.7	
20	300	2.5					3.4	
21	300	2.6					2.8	
22	275	2.5					2.8	
23	270	3.5					2.8	

Time: 0.0°.
Sweep: 1.5 Mc to 16.3 Mc in 1 minute.

TABLE 73

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

h'F2 (Characteristic), Km (Unit), June (Month), 1952

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., A.C.K., R.F.B., E.J.W.

Calculated by: McC., A.C.K., R.F.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	260	280	260	220	[230]A	(250)A	(310)A	360	400H	290	350H	450	580	420	420	350	A	A	260	250	(260)A	A	A	220
2	270	260	230	250	250	250	300H	300H	A	A	A	A	380H	360	330	350	320	300	280	260	230	(260)A	230	230
3	260	250	240	230	250	260	310	330	350	350H	350	380H	390	370	360	350	290	290	260	230	210	230	250	240
4	250	240	250	240	240	[260]L	270	580H	420	320H	370H	540H	400H	600H	530	410	360	330	290	240	230	240	260	260
5	250	240	250	240	250	270	[330]LH	380H	360	360	350H	350H	300H	380H	340	320	300	310	260	230	210	250	250	240
6	240	(290)A	260	(290)A	(280)A	(300)LH	250	310H	330	260	390H	400	360	350H	320	310	340	310	270	(260)A	[250]A	(240)A	[280]A	250
7	250	250	240	270	300	A	A	(370)A	290H	290H	330	330	360	310	350	350	330	320	260	260	220	240	220	260
8	280	270	300	300	310K	260K	GK	GK	330K	370K	340K	340K	530HK	530K	450K	(510)HK	410K	370K	310K	250K	250K	250K	310K	[300]AK
9	300K	230K	290K	[280]AK	280K	300K	LK	GK	GK	GK	GK	GK	500K	(450)SK	480K	520K	410K	390K	330K	280K	250K	220	260	260
10	250	270	270	250	300	290	270	[280]A	280H	300H	330H	310	350	300	300	330	320	310	290	240	240	240	(280)A	(280)A
11	A	A	A	(310)A	260	240	330	(710)S	490	G	550	450	400	560	600	390	350	330H	290	250	(250)A	270	250	280
12	270	250	[260]A	260H	(310)A	(520)L	G	430	350H	G	(400)A	[500]A	A	A	470	360	350	320	[290]A	250	250	(270)A	270	270
13	(280)A	(300)A	(330)A	250	250	240	(310)A	(330)A	380H	(370)A	320	360H	490	650	320	340	[320]A	300H	[280]A	260	(230)A	230	250	250
14	260	(250)A	260	270	A	A	(300)HK	GK	GK	440K	370K	310K	460K	GK	430K	380K	400K	320K	320K	240K	230K	230K	(260)AK	(300)AK
15	(320)AK	290K	280K	280K	(270)AK	320K	370HK	[440]AK	(520)AK	(580)AK	(540)AK	AK	AK	AK	AK	460K	420K	350HK	320HK	290K	(260)A	(280)A	(260)A	290
16	(260)A	(290)A	260	260	290	270	G	470	G	530	450	[420]A	400	[450]A	500	480	380	370	320	260	240	250H	240	240
17	270	280	260	260	220	240	(310)L	(420)S	[380]A	350	350	510	430H	(470)A	410	(440)S	390	330	300	250	250	240	220	250
18	240	270	260	240	250	290	290	(400)S	430	400	380	470	540	380	370H	380	380	370	300	260	[260]A	250	(270)A	(270)A
19	250	A	A	(300)A	(300)A	270	420	400H	360	C	C	C	450	370	370	310	370	330	(300)A	260	250	240	250	260
20	250	270	260	(290)A	(280)A	(270)L	350H	280H	360H	330	310	360	340	370H	350	360H	350	350	300	A	A	A	260	(260)A
21	(280)A	(290)A	A	A	A	(250)A	350	290	330H	340H	310	360H	340	370	350	260H	330H	280	280	240	230	230	240	250
22	250	270	270	(270)S	250	210	(350)L	370	[460]L	540HK	370HK	320K	360K	370HK	370K	360K	350K	330K	270HK	260K	240K	220	A	A
23	A	A	A	280	300	250	(440)L	570	G	G	580	[500]A	420H	510H	500	[460]A	430	460	330	270	250	240	260	290
24	250	260	280	300	(300)A	260	L	G	370	G	470	440H	410H	420H	420	430	320	350	310	260	240	220	250	[260]C
25	250	280	270	270	(290)A	280	310	320H	350	400H	420	[380]C	330	340	360	330	380	400	360	300	250	250	300	260
26	230	(270)S	270	300	(310)S	260	L	L	370H	380	420H	(450)A	470H	430	410	370H	420H	320	270	270	240	230	230	270
27	260	(300)A	250	260	260	(300)L	340H	450H	300	330	340H	490H	670	450	410	360	380	340	300	240	240	250	260	270
28	[280]A	300	250	270	(260)S	240	240	310	G	400	350	330	340	430H	340H	360	340	320H	260	(250)A	230	250	(300)A	(300)A
29	(290)A	(300)A	(270)A	(260)A	240H	220	(330)S	(300)F	360H	340H	350H	310	320	340	340	340K	320K	340K	310K	260K	(260)SK	(260)SK	240K	(300)SK
30	(330)SK	310FK	[300]SK	280FK	EK	(330)FK	GK	GK	GK	GK	GK	GK	GK	GK	GK	550K	420K	380	320H	290	270	250	280	270
31																								
Median	260	270	260	270	280	260	330	400	370	380	370	400	400	420	370	360	360	330	300	250	240	240	260	260
Count	28	27	26	29	28	28	26	29	29	28	28	27	28	28	29	30	29	29	30	29	29	28	28	29

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 74

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

foF2 (Characteristic), Mc (Unit), June (Month), 1952

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., A.C.K., R.F.B., E.J.W.

Calculated by: McC., A.C.K., R.F.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	4.0	3.6	3.6	3.1	2.5	(3.0) A	3.8	4.7	(4.8) H	5.3	5.1 H	(4.8) P	4.9	4.9	5.2	5.7	(5.6) A	[6.0] A	5.9	5.9	5.8	5.3	4.7	4.2 F
2	4.0 F	3.9	3.3	2.4	2.5 F	3.2	4.2 H	4.5 H	[5.0] A	(5.1) A	[5.2] A	(5.2) A	5.6 H	5.6	6.0	5.7	6.0	6.1	5.4	6.0	6.2	5.1	5.1	4.2
3	4.1	4.0	3.6	3.3 F	2.6	3.1	4.1	4.5	4.8	5.2 H	5.2	5.2 H	5.2	5.5	5.6	5.9	6.4	6.1	6.7	7.4	6.2	5.4	5.0	4.5
4	4.2	3.3	3.2	2.8	2.5	3.4	4.1	4.1 H	4.4	4.9 H	4.8 H	4.7 H	4.8 H	4.7 H	4.7	4.8	5.5	5.8	6.2	6.2	5.7	5.3	4.8	4.0
5	3.9	3.7	3.3	2.8	2.1	3.0	(3.6) H	4.6 H	4.5	(5.0) H	5.4 H	5.5 H	(5.4) H	5.5 H	5.8	6.0	6.1	6.6	7.2	6.8 F	5.8	4.9	4.7	4.5 F
6	3.5 F	3.1	2.7 F	2.3 F	2.4	3.1 H	4.7	4.7 H	4.7	5.2	5.2 H	5.0	5.6	5.9 H	6.2	6.0	5.9	6.3	6.5	(6.8) A	[6.8] A	5.8	4.7 F	4.7
7	4.2	3.5	3.2	2.8	2.6	[3.1] A	[4.2] A	4.7	5.3 H	(5.8) H	5.8	5.7	5.7	6.3	5.8	5.8	6.1	6.3	6.8	6.2	6.0	5.6	4.8	4.0
8	(3.7) S	3.4 JS	2.7	2.5	2.3 K	2.5 K	<3.2 GK	<3.3 GK	4.5 K	5.0 K	5.4 K	5.1 K	(4.6) HK	4.5 K	4.6 K	(4.5) HK	4.8 K	4.6 K	4.8 K	4.9 K	4.6 K	4.0 K	3.7 K	K (3.2) AF
9	3.0 K	K 2.7 JS	2.5 K	K 2.2 JA	1.8 K	2.6 K	3.0 K	<3.3 GK	<3.8 GK	<3.9 GK	<4.0 GK	<4.0 GK	4.5 K	[4.5] SK	4.5 K	4.4 K	4.6 K	4.6 K	4.7 K	4.9 K	5.2 K	5.1	4.9	4.7
10	4.2	4.1	3.6 F	2.7 F	2.7	3.3	4.5	(5.0) A	(5.4) H	5.8 H	6.4 H	6.0	5.8	6.4	6.1	5.6	5.5	5.8	6.6	5.9	5.8	5.4	4.9	4.9
11	(4.0) AS	(3.8) AJ	[3.1] A	2.5	2.7	2.8	3.8	(3.8) S	4.2	<4.2 G	4.4	4.5	4.7	4.5	4.4	4.9	5.0	5.4 H	5.3	5.4	(4.5) A	4.5	3.8	3.1
12	3.1 F	2.4 F	(2.6) AS	2.2 H	(1.9) AS	(2.9) JS	<3.3 G	3.4	4.6 H	<4.2 G	4.8	[4.6] A	A	A	4.7	5.0	5.0	5.0	(5.1) A	5.1	5.0	(4.7) S	4.2	(3.6) S
13	3.4	3.2	(2.4) A	3.2	2.7 F	3.7	(4.2) A	4.4	4.7 H	(5.1) A	5.3	5.4 H	5.2	5.2	5.4	5.6	5.4	5.4 H	[5.6] A	5.8	5.4	4.8	4.6	4.0 JS
14	3.9	3.7	2.7 JS	2.7 F	(2.2) JS	2.9	(3.4) HK	<3.5 GK	<4.0 GK	4.4 K	5.0 K	5.4 K	4.7 K	<4.2 GK	5.0 K	5.4 K	(5.0) SK	5.0 K	5.4 K	5.4 K	4.7 K	3.6 FK	2.8 FK	2.8 HK
15	2.8 K	K 2.7 F	2.8 FK	2.6 K	2.2 K	2.9 K	3.7 HK	[3.9] AK	K 4.2 JA	(4.4) AK	4.4 K	A K	A K	A K	A K	4.6 K	4.7 K	4.7 HK	4.8 HK	4.7 FK	5.3 F	4.9	4.5	4.0
16	3.9	3.2 F	(2.4) F	2.6	2.5 F	2.8	<3.3 G	3.8	<3.9 G	4.2	4.5	[4.7] A	4.4	[4.8] A	4.6	4.8	5.0	5.0	5.2	5.3	4.8 F	(5.0) SH	4.5	4.2
17	3.5 F	(3.3) F	3.1 JF	2.4	2.5	3.2	3.8	(4.2) A	[4.6] A	5.0	5.2	4.6	5.0 H	(4.8) A	(4.9) S	(4.8) S	5.1	5.3	5.3	5.3	5.3	5.2	4.8	4.4
18	4.0	3.5 F	3.4	2.8 F	2.3	3.1	4.3	4.1	4.7	4.7	5.0	4.8	4.8	5.4	5.3 H	5.2	5.0	5.2	5.2	6.0	5.6 JA	5.3	4.5	3.8
19	(3.5) S	(3.2) AS	2.9	(2.7) AS	(2.3) F	3.1	(3.8) S	4.5 H	4.8	C	C	C	5.1	5.4	5.5	5.6	5.2	5.5 H	(5.6) A	5.9	6.0	6.0	5.6	(4.4) FA
20	3.8 F	3.3	3.1	2.8	2.5 F	3.5	4.4 H	5.1 H	5.2 H	5.6	5.6	5.9	5.4	6.0 H	5.7	5.8 H	5.5	5.6	6.3	6.6	A	A	5.4	4.7 F
21	4.0 F	(4.0) Z	A	A	A	(3.3) A	4.4	5.0	(5.4) H	5.8 H	6.0	5.6 H	5.7	5.6	5.6	5.7 H	6.0 H	6.1	6.4	6.3	6.0	5.7	4.7	4.1
22	3.8	3.5	3.3	(3.1) SA	(2.7) SF	3.1	(3.9) S	4.5	4.4	4.7 HK	5.8 HK	6.2 K	6.5 K	6.4 HK	6.2 K	6.4 K	6.8 K	7.5 K	7.6 HK	7.6 K	7.2 K	5.6	4.5	4.6
23	[4.3] A	4.0	3.7	2.5 F	2.2 F	3.1 F	(3.7) S	4.2	<4.1 G	<4.2 G	4.5	[4.9] A	5.0 H	4.7 H	4.7	[4.9] A	4.8	4.9	5.6	6.0	6.9	6.4	5.7	5.0
24	5.0	4.7	3.5	2.8	2.3	3.0	(3.7) F	<3.8 G	(4.8) S	<4.1 G	4.8 S	5.3 H	5.6 H	5.5 H	5.2	5.3	5.4	5.5	5.8	6.1	6.0	5.7	5.1	[4.7] C
25	4.1	3.8	3.4 F	3.0 F	2.6 F	3.5	4.7	4.8 H	5.0	5.1 H	5.4	[5.8] C	6.3	5.8	5.9	5.6 F	5.0 F	4.8 F	5.0 F	5.6 F	5.9 F	6.0	5.3	5.3
26	4.9	(3.5) S	2.8 F	2.2 F	(1.9) S	3.2	3.6	4.4	5.4 H	5.1	5.6 H	(5.0) AJ	5.2 H	5.3	5.3	5.4 H	5.3 H	5.5	5.4	5.5	5.8	5.7	(4.6) S	4.2
27	4.0	3.7	3.5	3.0	2.8	3.1	3.6 H	4.2 H	5.1	5.2	(4.8) P	5.1 H	4.7	5.1	5.4	(5.6) S	5.4 JS	6.0	6.0	5.4	5.4 JS	4.8	4.5	4.5
28	4.1	3.7	3.4	3.0	2.5	2.9	3.8	3.9	<4.0 G	5.2	5.1	5.6	5.4	5.4 FH	5.8 FH	5.8	5.6	5.6 H	6.0	5.6 F	5.6 F	5.3 F	4.5 F	(4.4) SA
29	(4.0) SF	3.9 F	(3.6) SF	(3.3) F	(2.9) SH	3.5	(4.0) S	(4.4) F	5.1 H	5.7 H	5.8 H	6.4	6.0	5.8	6.6	6.0 K	6.7 K	7.1 K	8.0 K	7.8 K	(7.8) SK	7.6 K	6.1 K	4.5 FK
30	K 2.8 ZF	3.5 FK	[2.9] SK	3.1 FK	<1.0 EK	(2.6) FK	<3.0 GK	<3.4 GK	<3.7 GK	<3.9 GK	<4.1 GK	<4.2 GK	<4.3 GK	<4.2 GK	<4.2 GK	4.5 K	5.0 K	5.2	5.4 H	5.2	5.2	5.2 F	5.0 F	4.5
31																								
Median	4.0	3.5	3.2	2.8	2.5	3.1	3.8	4.3	4.7	5.0	5.1	5.2	5.2	5.4	5.4	5.6	5.4	5.5	5.7	5.9	5.8	5.3	4.7	4.4
Count	30	30	29	29	29	30	30	30	30	29	29	28	28	28	29	30	30	30	30	30	29	29	30	30

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 75

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

foF2 (Characteristic), Mc (Unit), June (Month), 1952

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75° W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., A.C.K., R.F.B., E.J.W.

Calculated by: McC., A.C.K., R.F.B.

Day	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330
1	3.6	3.6	3.5	2.8	2.8	3.5	[4.2]A	4.7	5.5	(5.4)A	5.0H	[4.8]A	[4.9]A	5.1	5.5	5.8	(5.8)A	6.2	6.0	6.0	[5.4]A	5.2	4.6	4.1F
2	3.8	3.5	3.1	2.6	2.7	3.6	4.6	4.7	5.4	[5.3]A	5.2	5.5H	5.6H	5.8	5.8	5.9	6.3	5.8	5.9	6.0	6.0	5.4	4.8	4.1
3	4.1	3.8	3.7	3.0	2.7	3.6	4.5	4.7	5.0H	5.3	5.0	5.1	5.4	5.5	6.0	6.0	6.6	6.4	7.0	7.0	5.7	5.2	4.8	4.2
4	3.9	3.2	3.1	2.6	2.7	4.0	4.2	4.1	5.0H	4.8H	(4.7)S	(4.8)P	4.7	4.7	4.8	5.1	5.5	6.0	6.5	5.8	5.6	5.0	4.4	4.0
5	3.7F	3.5	3.1	2.5	2.4	3.4	3.8H	4.6H	5.2H	(5.2)H	5.6H	5.9H	5.5	5.6	6.1	6.2	6.6	7.2	7.4	6.2	5.4	5.0	4.7	4.2
6	3.2F	2.9	2.5	(2.2)A	2.5	4.1	4.6	5.0	5.1	5.5H	(5.1)H	5.3H	6.0	6.0	[6.2]A	5.9	6.1	6.3	6.8	(6.8)A	6.3	5.4	4.9	4.3
7	3.8	3.4	3.0	2.7F	2.5	(3.7)A	4.7H	(5.2)A	(5.6)H	5.4H	5.6H	5.5	5.9	6.0	6.0	6.1	6.0	7.0	6.4	6.1	6.0	(5.4)S	4.5H	(3.7)S
8	(3.4)S	3.0	2.5	2.3	2.2K	2.9K	<3.3GK	4.5K	4.7K	5.2K	5.4K	4.8K	<4.3GK	4.6K	4.6K	4.3K	5.0K	5.0K	5.0K	4.5K	4.5K	3.8K	3.6K	3.2K
9	(3.1)SK	2.5K	(2.2)SK	K2.1JS	2.2K	2.8K	3.3K	<3.5GK	<3.9GK	<4.0GK	<4.0GK	4.8K	4.6K	4.4K	(4.5)SK	4.4K	[4.6]AK	4.6K	4.7K	4.9K	5.2K	5.2	4.9	4.5
10	4.3	3.5F	(3.5)A	(2.5)AS	(2.8)F	3.9	(5.0)H	5.2H	(5.6)H	(6.0)H	6.5	(5.6)S	6.1	6.6	(5.6)	5.3	(5.6)S	6.0	6.1	5.5	5.6	5.1	4.9	[4.4]A
11	[4.2]A	A	A	3.0F	2.7F	3.2	3.7	4.0	4.3	<4.2G	4.5	(4.5)A	4.9S	4.6	4.7	5.1	5.0H	5.4	5.4	5.1	4.5	4.2	3.3	3.1F
12	3.1F	2.6F	(2.5)A	2.0	(2.3)AS	[2.8]AS	<3.4G	4.4	4.5	4.4	4.7	A	A	(4.8)A	5.0	5.0	5.3	[5.0]A	[5.1]A	5.2	5.0	4.5	3.8	(3.5)JS
13	(3.1)A	3.0	3.0F	(2.8)FS	3.0F	4.0H	(4.6)A	[4.6]A	5.0	(4.8)A	5.3	(5.0)A	5.1H	5.2	5.4	5.8	(5.5)A	5.4	5.6	5.4	5.2	4.5	4.0	3.9
14	(4.0)S	3.3	2.7	2.7JS	2.4	3.0	3.4K	<4.0GK	<4.0GK	4.8K	5.2K	5.0HK	4.9K	4.3K	(5.0)SK	K5.2JS	4.8K	4.9K	5.5K	5.1K	4.1K	3.5K	K2.8AJ	2.8K
15	2.6HK	2.7FK	2.8K	2.6K	[2.6]AK	3.4K	AK	AK	(4.1)AK	(4.3)AK	[4.5]AK	AK	AK	AK	4.5K	4.5K	4.7HK	4.8K	4.8HK	5.0K	5.1	5.1	4.4	4.1
16	3.8	3.0H	(3.1)F	(2.8)F	2.4	3.1	<3.4G	A	<3.9G	4.4	4.8	4.6	[4.6]A	(4.5)A	4.7	4.9	5.0	5.1	5.4	5.0	5.0F	(4.7)AS	(4.2)S	3.8F
17	3.4F	3.5F	3.0F	2.9	2.8	3.5	(4.0)S	[4.4]A	4.8	5.2	4.9	4.8	4.9	(4.9)S	(5.0)S	4.8	5.2	5.4	5.4	5.9	5.5	5.0	4.8	4.2
18	3.6	3.5F	3.2	2.7	2.5	3.7	4.3H	4.6	4.8	5.0	4.9	4.8	4.9	5.5	5.2	5.0	5.0	5.2	[5.6]A	5.6	5.7	4.7	[4.1]A	3.7
19	(3.3)S	[3.2]A	2.8F	2.7F	2.5F	(3.4)S	4.2	4.6	C	C	C	C	5.4	5.5	5.6	5.6	5.4	5.5	5.8	6.0	6.1	5.8	5.0	(5.2)AF
20	3.3F	3.3F	2.9	2.7	2.8H	4.2H	4.9H	5.4	6.0	5.6	5.7	5.7	5.7	5.8	5.8	5.7	5.5	5.8	6.5	A	A	5.6	5.2	4.5
21	3.8F	A	A	A	A	(3.8)A	(4.5)A	5.2	5.6	6.0	5.8	5.8H	5.6H	5.8H	5.6	5.6	6.0	6.2	6.5	6.0	5.8	5.3	4.5	4.0
22	3.8	3.2	3.3	3.0	2.8F	3.4H	4.3	4.9	4.7	5.8HK	6.0K	6.3K	6.6K	6.1K	6.3K	6.4K	7.4K	7.7K	7.4K	7.4HK	(7.0)SK	5.1	4.5	4.6
23	4.0	[3.8]A	(3.2)A	2.2	2.6	3.5	(4.0)S	<4.3G	<4.0G	4.6	<4.2G	(4.9)H	4.8	(4.7)A	4.8	4.9H	4.7	5.4	6.0	6.9	6.4	5.8	5.4	(5.0)S
24	4.8	4.2	3.2	2.5	2.5	(3.2)FH	(3.8)JS	4.2	4.5	4.5	4.9	5.6H	5.5H	5.5	5.1	5.4	5.5	5.6	6.0	6.2	5.8	5.4	4.9	4.4
25	3.9	3.4	3.1F	2.8F	2.8	4.2	4.8	5.0H	5.0H	5.0	C	C	6.3	5.6	5.8	5.3F	4.8F	4.9F	5.3F	5.8F	5.5F	5.6JS	4.9JS	(5.4)S
26	4.0	3.4	2.5F	2.0F	2.4F	3.5	4.4	4.7	5.0	4.9	(4.7)P	(5.2)P	5.2	5.4	5.1	5.3	5.5	5.5	5.4	5.4	5.8	5.3	4.3	4.0
27	3.8	3.7	3.3	2.9F	2.8	3.6	3.9	4.3	(4.7)P	5.0	4.9	5.1H	5.0	5.5	5.8	5.4	(5.7)S	(6.0)S	6.0JS	5.6	5.1	4.6	4.4	4.3
28	4.0	3.7	2.9	2.7	2.4	3.6	3.7	4.2	4.6	5.4	5.4	5.6	5.3H	5.6	5.6	(5.6)A	5.6	6.0	5.6	5.5F	(5.3)SF	4.7F	(4.2)A	(4.2)A
29	(4.2)S	(3.7)SA	3.5F	(3.4)SF	(3.0)SA	3.8	4.0	5.0H	(5.4)S	5.7H	6.0	6.4	5.9	5.9	6.1	6.5K	6.6K	7.5K	8.6SK	7.4K	8.2K	7.0K	5.2HK	K(3.5)FS
30	2.2FK	2.7FK	3.0FK	<1.0EK	(2.0)SK	(2.7)FK	<3.2GK	<3.5GK	<3.8GK	<4.0GK	<4.1GK	<4.2GK	<4.3GK	<4.2GK	4.5K	4.7K	5.1K	5.2	5.4	5.1F	5.3F	5.0F	4.7F	4.0
31																								
Median	3.8	3.4	3.0	2.7	2.6	3.5	4.2	4.6	4.8	5.0	5.0	5.1	5.2	5.5	5.4	5.4	5.5	5.6	5.8	5.6	5.5	5.1	4.6	4.1
Count	30	28	28	29	29	30	29	28	29	29	28	26	28	29	30	30	30	30	30	29	29	30	30	30

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 76

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

h'F1 (Characteristic), Km (Unit), June (Month), 1952

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., A.C.K., R.F.B., E.J.W.

Calculated by: McC., A.C.K., R.F.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							A	A	A	A	180H	190	[210]A	230	A	A	A	A	A	A				
2							230	A	A	A	A	A	A	180	190	210	200H	210	200	230				
3						210	220	210	210	190	180	180	190	200	190	200	220	220	A	A				
4						240	210	190	200	180H	180H	180H	180H	180H	220	A	A	A	210	A				
5						A	230H	(190)A	190H	190H	190H	200H	200	210	200	230	(250)A	(220)A	A	A				
6						250	220	210H	200H	200	(210)A	190	210	205H	A	A	A	200H	230	A				
7						A	A	A	220	190H	180	200	170H	210H	(230)A	210H	210	A	A	A				
8						QK	220K	230K	210K	220K	220HK	210K	190HK	220K	[220]KA	220HK	200K	250K	(240)KA	QK				
9						QK	230K	220K	240K	240K	200K	200HK	200K	200K	(210)KA	220K	210K	220HK	[240]KA	270K				
10						220	230	A	A	A	(220)A	[210]A	210	[220]A	230	220	210	210H	230	230				
11						Q	200	200	190H	200	200	210	180	200	A	A	180H	200H	220	A				
12						230H	230H	200H	[200]A	210	A	A	A	200	210	[220]A	220H	A	A	A				
13						Q	A	A	A	A	A	200	190H	A	A	(220)A	A	A	A	A				
14						Q	190HK	200K	190K	180HK	170K	(190)KA	200K	200HK	220K	250K	210K	200HK	250K	AK				
15						QK	220K	AK	AK	(220)KA	220K	AK	AK	AK	AK	200HK	170HK	200K	(220)AK	250K				
16						Q	(230)A	(210)A	[210]A	(220)A	A	A	(210)A	A	A	(230)A	(210)A	220	220	250				
17						Q	230	A	A	220	210H	190	190	[210]A	(220)A	[220]A	220	230H	(230)A	A				
18						240	230	230	220	210	210	210	200	210	200	170H	[200]A	240	220	A				
19						A	A	A	A	C	C	C	200	(210)A	(210)A	210	200H	(220)A	A	A				
20						240	210	200	200H	A	A	170H	170H	180H	190H	200H	220	210	A	A				
21						A	A	230	A	A	A	A	170H	200	210H	220	[230]A	240	240	A				
22						Q	A	(220)A	200H	AK	AK	AK	220K	210K	220K	210K	200HK	220K	220K	QK				
23						Q	250	210	210H	180H	A	A	200H	190H	A	A	200	220	230	260				
24						Q	(240)A	(220)A	200	200	[200]A	210	180H	190H	190H	[200]A	200	220	260	260				
25						A	A	A	(220)A	(220)A	210	[200]C	180H	180H	200H	180H	210H	210	[230]A	250				
26						Q	230	A	A	210	210	190	200H	(230)A	210	210H	200H	200	220	250				
27						250	230	200H	[200]A	190	190	180H	170H	200H	200	210	200	200	230	A				
28						Q	220	210	200	190	200H	180H	170H	170H	190H	[220]A	(260)A	[240]A	230	A				
29						Q	(210)A	(210)H	200H	200H	190H	(190)A	(180)A	180H	200	210K	200K	210	220	250				
30						QK	270K	200HK	210HK	200HK	200HK	180K	180HK	180HK	180HK	190HK	250K	220HK	240K	270K				
31																								
Median						240	230	210	200	200	200	190	190	200	210	210	210	220	230	250				
Count						8	23	20	21	22	21	22	27	27	23	25	26	25	22	11				

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 77

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

foF1 (Characteristic), Mc (Unit), June (Month), 1952

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75° W Mean Time

Scaled by: McC., A.C.K., R.F.B., E.J.W.

Calculated by: McC., A.C.K., R.F.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							A	3.8	A	A	4.3^{H}	4.4	[4.4]A	4.4	A	A	A	A	A	A				
2							L	A	A	A	A	A	A	4.4	4.4	4.3	4.2^{H}	4.0	L	L				
3						L	3.3	3.7	4.0	4.2	4.3	4.4	4.3	4.3	4.3	4.3	4.1	3.9	(3.4)L	L				
4						L	L	3.8	3.9	4.1^{H}	4.3^{H}	4.3^{H}	4.3^{H}	4.3^{H}	4.3	4.2	4.0	3.8	3.4	A				
5						A	3.4^{H}	3.7^{H}	3.9^{H}	4.1^{H}	4.2^{H}	4.3^{H}	$(4.4)^{H}$	4.4	4.3	4.2	4.1	3.9	L	L				
6						L	L	4.1^{H}	4.1^{H}	4.2	4.5	4.3	[4.4]A	4.4^{H}	(4.3)A	(4.1)A	[4.0]A	4.0^{H}	(3.4)L	A				
7						A	A	A	3.9	4.1	4.3	4.3	4.3^{H}	4.2^{H}	4.3	4.3^{H}	(3.8)S	A	A	A				
8						Q^{K}	3.2^{K}	3.3^{K}	3.8^{K}	4.0^{K}	4.2^{H}_{K}	4.2^{K}	4.3^{H}_{K}	4.1^{K}	4.2^{K}	$(4.0)^{B}_{K}$	4.0^{H}_{K}	3.7^{K}	3.3^{K}	Q^{K}				
9						Q^{K}	L^{K}	3.3^{K}	3.8^{K}	3.9^{K}	4.0^{K}	4.0^{H}_{K}	4.1^{K}	4.2^{K}	4.1^{K}	4.0^{K}	3.8^{K}	3.8^{H}_{K}	A^{K}	L^{K}				
10						2.5	L	A	4.1	[4.2]A	4.3	[4.3]A	4.3	[4.3]A	4.3	4.2	4.0	3.9^{H}	3.3	L				
11						Q	3.2	3.6	3.8	4.2	$(4.1)^{S}$	4.2	4.2	4.3	A	A	3.9^{H}	3.7^{H}	3.3	A				
12						$(2.6)^{L}$	3.3^{H}	3.5^{H}	3.9^{H}	4.2	A	A	A	A	4.2	4.1	4.0^{H}	3.8	A	A				
13						Q	A	A	4.0^{H}	[4.1]A	4.2	4.3	4.5^{H}	[4.4]A	(4.3)A	4.3^{H}	A	A	A	A				
14						Q	3.1^{H}_{K}	3.5^{K}	$(4.0)^{S}_{K}$	4.0^{H}_{K}	4.2^{K}	4.2^{K}	4.3^{K}	4.2^{H}_{K}	4.1^{K}	4.0^{K}	4.0^{K}	3.8^{H}_{K}	3.4^{K}	L^{K}				
15						Q^{K}	3.2^{K}	$[3.5]^{A}_{K}$	3.8^{K}	4.1^{K}	4.2^{K}	A^{K}	A^{K}	A^{K}	A^{K}	4.0^{H}_{K}	4.0^{H}_{K}	3.9^{H}_{K}	3.4^{K}	L^{K}				
16						Q	3.3	3.5	3.9^{H}	4.0	4.0	[4.2]A	4.3^{H}	[4.3]A	(4.3)A	4.2	4.0	3.8	3.4	L				
17						Q	L	$(3.7)^{H}$	[3.9]A	4.1	4.3^{H}	4.3	4.3	(4.4)A	4.3	[4.2]A	$(4.1)^{S}$	3.9^{H}	3.4	A				
18						L	3.3	$(3.8)^{S}$	3.9	4.1	4.3	4.4	4.4	4.4	4.4	4.4^{H}	[4.2]A	4.0	3.5	A				
19						A	3.3	3.7	4.0	C	C	C	4.5	4.4	4.4	4.3	4.3^{H}	4.0^{H}	A	A				
20						L	3.6	3.8	4.2^{H}	4.3^{H}	[4.4]A	4.5^{H}	4.5^{H}	4.5^{H}	4.5^{H}	4.4^{H}	4.3^{H}	3.9	A	A				
21						A	A	4.0	4.2	A	A	A	4.4^{H}	4.5	4.5^{H}	4.3	[4.2]A	4.0	L	L				
22						Q	L	4.0	$(4.1)^{L}$	4.3^{K}	4.3^{K}	4.4^{K}	4.5^{K}	4.6^{K}	4.4^{K}	4.4^{K}	4.2^{H}_{K}	4.1^{K}	L^{K}	Q^{K}				
23						Q	$(3.5)^{L}$	3.8	4.1^{H}	4.2^{H}	A	A	4.4^{H}	$(4.4)^{H}$	A	A	4.2	3.9	3.5	L				
24						Q	$(3.4)^{L}$	3.8	$(3.9)^{S}$	4.1	[4.2]A	4.4	4.4^{H}	4.5^{H}	4.4^{H}	4.3	4.2	4.0	3.6	L				
25						A	A	A	4.2	4.4^{H}	4.4	[4.4]C	4.5^{H}	4.5^{H}	4.4^{H}	4.3^{H}	4.2^{H}	$(3.9)^{S}$	(3.5)L	L				
26						Q	L	L	A	4.3	4.5	4.5	4.5^{H}	4.5	4.4	4.4^{H}	4.3^{H}	4.0	L	L				
27						L	3.3	3.7^{H}	4.0	4.2	4.4	4.5^{H}	4.5^{H}	4.4^{H}	4.4	4.3	4.1	3.9	3.5	A				
28						Q	L	3.3	4.0	4.3	4.5^{H}	4.5^{H}	4.6^{H}	4.5^{H}	4.4^{A}	[4.4]A	4.3	(3.9)A	L	A				
29						Q	L	$(3.5)^{F}$	4.3^{H}	4.5^{H}	4.6^{H}	4.5	4.5^{H}	4.6^{H}	4.5	4.4^{K}	4.3^{K}	4.1^{K}	3.5^{K}	L^{K}				
30						Q^{K}	3.0^{F}_{K}	3.4^{H}_{K}	3.7^{H}_{K}	3.9^{S}_{K}	4.1^{H}_{K}	4.2^{K}	4.3^{H}_{K}	4.2^{H}_{K}	4.2^{H}_{K}	4.0^{H}_{K}	3.9^{K}	3.8^{H}	3.7	L				
31																								
Median						—	3.3	3.7	4.0	4.2	4.3	4.3	4.4	4.4	4.3	4.3	4.1	3.9	3.4	—				
Count						2	15	24	27	26	25	24	27	28	26	27	28	27	17					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 78

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

h'E (Characteristic), Km (Unit), June (Month), 1952

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., A.C.K., R.F.B., E.J.W.

Calculated by: McC., A.C.K., R.F.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	110	100	100	100	100	100	100	100	100	100	100	100	110	110				
2						120	110	100	100	100	100	100	100	100	100	100	100	100	110	120H				
3						120	110	100	100	100	100	100	100	100	100	100	100	110	110	110				
4						120	100	100	100	100	100	100	100	100	110	110	110	110	110	A				
5						130	110	110	100	100	100	100	100	100	100	110	110	110	110	120				
6						120	110	110	100	100	100	100	100	110	110	110	110	110	120	130				
7						S	120	110	110	100	100	100	100	A	A	100	100	110	120	A				
8						120K	110K	110K	100K	100K	100K	100K	100K	100K	100K	100K	100K	110K	120K	120K				
9						SK	110K	AK	AK	AK	100K	100K	100K	100K	100K	100K	100K	110K	120K	120K				
10						110	110	100	100	100	100	100	100	100	[100]A	100	100	110	110	S				
11						A	A	A	100	100	100	100	100	100	100	100	100	100	110	A				
12						110	100	100H	100	100	100	100	100	100	100	100	110	110	110	A				
13						A	100	100	100	110	100	100	100	100	100	100	100	100	110	110				
14						A	AK	100K	100HK	100K	100K	100K	100K	100K	100K	100K	110K	110K	110K	120K				
15						120K	100K	100K	100K	100K	100K	100K	100K	(100)AK	100K	100K	110K	110K	110K	120K				
16						110	110	100	100	100	100	100	100	100	100	100	110	110	110	110				
17						110	110	110	100	100	100	100	100	100	100	100	100	110	110	120				
18						120	120	110	100	100	100	100	100	100	100	100	100	110	110	120				
19						(130)S	110	100	100H	C	C	C	100	100	100	110	110	110	110	120				
20						100	110	100	100	100	100	100	100	100	100	110	110	110	110	110				
21						110	[100]A	100	100	100	100	100	100	100	100	110	110H	110	110	110				
22						110	110	110	110	100K	100K	100K	100K	100K	100K	100K	110K	110K	110K	120K				
23						120	110	110	100	100	100	100	100	100	100	[100]B	110	110	110	120				
24						110	110	100	110	100	100	100	100	100	110	110	110	110	110	120				
25						110	110	110	100	100	100	[100]C	100	A	A	A	(100)A	110	110	120				
26						120	110	[100]A	100	110	100	100	100	100	100	100	100	100	100	110				
27						S	100H	100	100	100	100	100	100	110	100	100	100	100	110	S				
28						S	110	100	100	100	100	100	100	100	110	100	100	100	110	A				
29						A	110	100	100	100	100	100	100	100	100	100K	100K	110K	110K	SK				
30						AK	110K	110K	110K	100K	100K	100K	100K	110K	110K	110K	110K	110	120	(130)S				
31																								
Median						120	110	100	100	100	100	100	100	100	100	100	100	110	110	120				
Count						20	28	28	29	28	29	29	30	28	28	29	30	30	30	22				

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 79

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

foE (Characteristic), Mc (Unit), June (Month), 1952

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Scaled by: McC., A.C.K., R.F.B., E.J.W.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

Calculated by: McC., A.C.K., R.F.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	A	2.5	2.9	3.0	A	A	A	A	A	3.2	2.9	2.6	2.1	A				
2						S	A	A	A	A	A	A	A	A	A	3.2	3.0	2.8	2.3	1.7H				
3						S	2.1	A	A	A	A	A	3.3	[3.2]A	(3.2)P	3.1	3.0	2.7	2.3	A				
4						S	A	(2.5)A	2.7	A	A	A	3.3	3.3	3.2	3.1	2.9	2.5	2.2	A				
5						A	A	A	A	2.9	3.1	3.1	3.2	3.3	3.2	3.1	2.9	2.6	2.2	A				
6						S	2.2	2.4	[2.6]A	(2.9)P	A	A	3.3	3.3	3.2	3.1	2.9	2.7	2.3	A				
7						A	A	2.6	[2.8]A	3.1	A	A	3.3	A	A	3.2	3.0	2.7	2.2	A				
8						1.4K	2.2K	2.5K	[2.8]AK	(3.0)PK	3.2K	3.2K	AK	AK	AK	3.2K	2.9K	2.6K	2.1K	SK				
9						SK	AK	AK	AK	AK	AK	(3.3)PK	3.3K	AK	AK	3.2K	2.9K	2.6K	2.1K	AK				
10						A	A	A	2.8	3.0	A	A	A	A	A	A	2.9	2.5	2.2	A				
11						S	A	2.5	[2.8]A	3.0	3.1	A	A	3.1	[3.2]A	3.0	2.9	2.6	2.2	A				
12						S	A	2.5H	A	A	A	A	A	3.2	3.2	3.1	2.9	2.6	2.2	A				
13						A	A	2.6	[2.8]A	3.0	A	A	A	A	A	(3.2)P	3.0	2.6	(2.0)A	S				
14						A	AK	AK	2.7KH	3.1K	3.1K	3.2K	3.4K	3.3K	3.2K	3.1K	[2.8]AK	2.5K	2.2K	AK				
15						AK	AK	2.4K	AK	AK	AK	AK	AK	AK	3.2K	3.1K	2.9K	2.6K	2.2K	AK				
16						A	A	2.5	A	A	A	A	A	3.2	3.3	3.1	3.0	2.7	[2.1]A	(1.5)A				
17						S	A	A	A	A	A	A	A	A	A	A	A	A	2.3	A				
18						S	A	2.6	2.8	3.0	A	A	A	3.3	3.3	3.2	3.0	2.7	2.2	A				
19						S	A	2.6	2.8H	C	C	C	A	A	A	A	3.0	2.7	2.2	A				
20						A	A	A	A	A	A	A	A	3.4	3.4	3.3	3.1	2.9	2.3	A				
21						A	A	A	A	A	A	A	A	A	A	3.3	3.1H	2.8	2.3	1.6				
22						A	A	2.4	2.8	AK	AK	AK	AK	AK	AK	3.3K	3.1K	2.8K	2.4K	1.8K				
23						(1.5)S	A	A	A	3.2	3.3	3.4	A	A	A	A	3.2	2.8	2.3	S				
24						S	A	A	A	A	A	A	A	A	A	A	3.0	2.8	2.5	A				
25						A	A	A	A	A	A	C	A	A	A	A	(3.1)A	(2.9)P	[2.5]A	1.9				
26						(1.6)P	2.3	[2.7]A	3.1	[3.2]A	3.3	A	A	A	A	3.2	3.2	[2.8]A	2.4	A				
27						S	2.2H	[2.5]A	2.8	[3.0]A	3.3	A	A	A	A	A	A	(2.7)S	2.4	A				
28						S	2.2	2.5	2.9	3.2	3.2	3.3	(3.4)A	3.4	[3.3]A	(3.2)A	(3.1)A	2.8	2.4	A				
29						A	(2.1)A	(2.5)A	[2.8]A	3.1	3.3	A	A	3.4	3.4	AK	AK	2.8K	SK	SK				
30						AK	2.3FK	2.5K	[2.7]AK	2.9K	3.1K	AK	AK	AK	3.2K	(3.0)PK	3.0K	2.7	2.5	1.8				
31																								
Median						—	2.2	2.5	2.8	3.0	3.2	3.2	3.3	3.3	3.2	3.2	3.0	2.7	2.2	1.8				
Count						3	8	18	17	16	10	6	8	12	14	22	27	29	24	6				

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 80

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

Es (Characteristic), Mc,Km (Unit), June (Month), 1952

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Scaled by: McC., A.C.K., R.F.B., E.J.W.

Lat 38.7°N, Long 77.1°W

75° W Mean Time

Calculated by: McC., A.C.K., R.F.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	31/110	50/100	45/100	42/120	43/110	48/110	116/100	67/110	51/110	53/100	4.3/110	53/110	60/120	65/130	76/120	52/110	45/110	60/100	68/100	10.3/100	45/100
2	33/100	26/100	E	E	E	19/110	31Y/120	45/110	144/100	76/100	80/100	70/100	68/100	55/100	43/100	G	G	G	G	G	E	37/100	30/110	35/110
3	E	E	E	E	E	G	G	37/110	52/100	42Y/100	44/100	44/100	G	70Y/100	G	G	G	G	38/120	35/110	E	E	E	27/100
4	E	E	E	E	E	G	35/110	36/110	40/110	41/110	76/110	34/100	G	G	G	75/120	46/120	43/110	G	34/110	26/110	E	E	E
5	E	E	E	E	E	30Y/120	35/120	42/110	76/110	45/110	44/120	58/110	102/100	G	G	G	43/130	44/120	40/130	36/120	33/120	50/110	47/110	35/110
6	30/110	50/100	26/110	38/120	34/120	G	G	42/110	45/100	46/110	50/110	34/120	55/130	76/130	73/130	88/120	69/120	48/120	38/120	80/110	7.6/110	60/110	60/110	39/110
7	34/110	27/110	25/110	40/100	40/100	64/110	78/110	46/120	52/120	64/100	35/110	35/120	G	40/100	50/100	G	G	52/120	46/120	37/110	33/110	34/110	E	E
8	24/110	E	E	E	61/100	G	G	38Y/110	56Y/110	44/120	G	44Y/110	5.2/110	42/110	4.1/110	G	G	37Y/130	38/120	30Y/120	E	25/120	42/110	45/110
9	40/110	E	40Y/130	38/110	25/110	25/120	38Y/110	7.0/110	40/100	41/100	35/110	G	37/110	3.7/110	50/130	G	43/130	G	50/120	40/120	30/130	E	E	38/110
10	32/110	50/100	47/110	50/100	58/100	45/110	45/110	72/110	60/110	60/110	76/110	83/110	70/110	84/100	80/100	80/110	45/130	G	G	27/130	E	28/130	43/120	88/110
11	80/110	7.2/110	7.0/100	58/100	50/100	36Y/100	29/100	3.2/100	37/100	74/100	46/110	46/110	38/110	G	57/120	94/120	G	G	3.3/120	37/110	56/110	80/100	5.8/100	33/110
12	3.7/100	35/100	41/100	55/100	48/100	50/110	39/100	35H/110	50/110	70/110	78/110	70/110	11.2/110	115/110	76Y/110	47/120	50/120	60/120	80/120	84/120	36/110	74H/110	54/110	32/110
13	48/110	45/100	50/100	48/100	45H/100	39/100	54/110	74/110	9.3/110	90/110	60/110	55/110	43/110	90/100	68/100	66/120	96/130	64/120	82/110	76/110	52/110	E	E	39/110
14	38S/120	70Y/110	44/110	27/130	82Y/110	34/110	44/110	34/110	70Y/100	G	42/120	62/110	G	38/130	70/110	G	37/110	40/110	35Y/130	33/120	25Y/120	37/130	41/120	45/120
15	33/120	27/120	30/120	34/110	40/110	37/110	37/110	68/110	68/110	70Y/110	76/110	90/110	102H/110	80/110	68/120	50/160	G	55/130	68H/120	51/120	53/110	86/110	48/110	30/110
16	42/110	40/120	4.3/130	E	34/120	31/110	43/110	44/110	78/110	80/110	80/110	80/110	72/110	90/110	70/120	48/120	45/120	4.2/120	3.3/120	39/110	70/130	70H/110	2.7/110	36H/130
17	70/130	29/130	32/130	3.5/110	24/110	G	80/100	44/110	78/110	74/110	64/110	50/110	78/110	54/110	(72)S/110	80/110	52/110	50/130	3.3/130	38/130	27Y/120	28/120	E	E
18	E	E	E	E	40/140	26/120	33/120	43/120	43/110	45/110	4.6/110	54/110	41/110	34/110	31/110	G	57/130	43/140	58/120	7.0/110	74/110	75/110	74/110	70/110
19	4.4/110	45/100	46/100	66/100	42/110	47/120	38/130	66/100	76Y/110	C	C	C	38/110	100/110	50/110	44/110	G	43/130	72/110	74/110	180H/110	140/110	115/110	66/100
20	54/100	58Y/100	29/100	40/100	35/100	43/100	36/110	41/110	44/110	60/110	60/100	48Y/110	45/110	G	G	G	52/130	G	60/130	82/110	135/110	102/110	60/110	65/110
21	80Y/100	50/100	56/100	6.4/110	86/100	80/110	80/100	74/110	75/110	68/110	66/110	80/110	47/110	56/120	50Y/110	48/120	83/120	45/110	G	3.4/120	27/110	E	E	E
22	E	38/110	39/100	40/100	36/100	82/120	36/110	46/110	38/110	62/110	50/100	49/100	40/100	46/110	48/120	70/110	G	G	G	G	31/120	42/110	48/110	48/110
23	73/110	74/110	71/100	40/120	E	48Y/110	30/120	70Y/110	75/120	G	58/110	51/110	50/110	46/110	70/110	47/110	G	G	G	G	12/110	E	E	E
24	E	E	27/110	4.3/100	40/100	31/110	38/110	7.7/110	40/110	72Y/110	66/110	90/110	4.2/110	47/100	45/100	45/110	G	G	G	21/120	2.7/120	36/110	40/110	C
25	33/100	41/100	31/100	35/110	30/100	37/120	50/110	50/120	45/110	68Y/110	52/110	C	43/100	4.1/110	69Y/100	33/100	29/100	G	(42)S/120	29H/130	35/110	E	E	24/110
26	21/110	E	E	E	E	G	G	54/100	5.4/110	37/110	46Y/110	52Y/110	4.6/100	47/110	4.7/110	G	G	7.5/110	3.8/120	21/110	35/100	39/110	E	E
27	E	40/100	25/100	E	E	G	G	40/110	50/100	80/100	G	36/110	45/110	43/110	70H/100	45/100	40/100	33/120	40/110	44/110	70/110	38/110	32/120	35/120
28	48/110	54/110	38/110	24/100	E	19/110	G	3.7Y/120	G	G	38/110	35/120	55/110	39/120	68/120	56/130	5.8/120	52/120	5.3/120	43/120	37/120	60/120	54/110	68/110
29	(38)S/110	5.2/100	40/110	30/110	(24)S/(120)	7.2/110	53/120	38/120	66/110	47/110	G	75/100	56/110	G	96/130	60/130	3.7/110	G	G	G	E	E	E	E
30	E	20/110	(2.2)S/120	E	E	32/110	52/100	G	33/120	G	G	48/110	35/110	66/120	G	G	G	G	G	24/130	20/130	E	E	E
31																								
Median	33	36	3.0	34	3.4	33	38	44	52	60	50	5.1	46	46	52	46	38	4.1	38	36	3.3	37	36	35
Count	30	30	30	30	30	30	30	30	30	29	29	28	30	30	30	30	30	30	30	30	30	30	30	29

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 81

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

M1500)F2 (Characteristic), ____ (Unit), June (Month), 1952

Observed at Washington, D.C. Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., A.C.K., R.F.B., E.J.W.

Calculated by: McC., A.C.K., R.F.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.0	1.9	2.0	2.1	2.0	(2.3)A	2.1	2.1	(1.9)H	2.4	2.1H	(1.8)P	1.6	1.8	1.8	2.0	(1.9)A	A	2.3	2.2	2.2	2.0	2.0	1.9F
2	2.0F	2.0	2.2	2.0	2.0F	2.3	2.3H	2.3H	A	(2.0)A	A	A	1.9H	2.0	2.1	2.0	2.0	2.1	2.1	2.1	2.2	2.1	2.2	2.1
3	1.9	2.0	2.1	2.2F	2.0	2.2	2.1	2.1	2.0	2.0H	2.1	2.0H	1.9	2.0	2.0	1.9	2.2	2.1	2.2	2.2	2.3	2.0	2.0	2.0
4	2.0	2.0	2.0	2.1	2.1	2.1	2.3	1.6H	1.9	2.3H	2.1H	1.6H	2.0H	1.5H	1.6	1.9	1.9	2.0	2.2	2.3	2.0	2.1	2.0	1.9
5	2.0	2.1	2.1	2.0	2.0	2.2	(1.9)H	2.0H	2.0	(2.0)H	2.0H	2.0H	(2.3)H	1.9H	2.0	2.0	2.1	1.9	2.2	2.2F	2.2	2.0	2.0	2.1F
6	1.9F	2.0	2.1F	2.0F	2.0	2.2H	2.4	2.0H	2.1	2.5	1.9H	1.9	2.0	1.9H	2.1	2.1	2.0	2.1	2.1	(2.1)A	A	2.2	2.0F	2.0
7	2.1	2.1	2.1	2.0	2.0	A	A	1.9	2.3H	2.3H	2.1	2.1	2.0	2.0	2.0	1.9	2.0	2.0	2.3	2.1	2.1	2.0	2.1	2.1
8	(2.0)S	(2.0)JS	1.9	1.8	1.8K	2.3K	GK	GK	2.2K	2.0K	2.0K	2.1K	(1.6)HK	1.7K	1.8K	(1.7)HK	1.8K	1.9K	2.1K	2.1K	2.0K	2.0K	1.9K	(1.9)HFK
9	1.9K	(2.2)JSK	1.9K	(1.8)AJK	2.0K	2.2K	2.3	GK	GK	GK	GK	GK	1.7K	SK	1.7K	1.6K	1.9K	1.9K	2.0K	2.0K	1.9K	1.9	1.9	1.9
10	1.9	2.1	2.1F	2.1F	1.9	2.2	2.4	A	(2.4)H	2.1H	2.1H	2.2	2.0	2.1	2.2	2.0	2.1	2.0	2.0	2.2	2.1	2.0	2.0	2.1
11	(2.0)AS	(2.2)AS	A	1.9	2.0	2.0	2.2	(1.4)S	1.7	G	1.6	1.8	1.9	1.6	1.5	1.9	2.0	2.0H	2.1	2.3	(2.1)A	2.0	2.1	2.0
12	2.1F	2.1F	(2.1)AS	2.1H	(1.9)AS	(1.6)AS	G	1.9	2.1H	G	1.9	A	A	A	1.7	2.0	2.0	2.1	(2.0)A	2.1	2.1	(2.0)S	2.0	(2.0)S
13	2.0	2.0	(1.8)A	2.1	2.1F	2.4	(2.2)A	2.0	2.0H	(2.2)A	2.3	2.1H	1.9	1.5	2.1	2.0	2.2	2.2H	A	1.9	2.1	2.1	2.0	(2.0)JS
14	2.1	2.1	(2.0)JS	2.2F	(1.9)JS	1.9	(2.3)HK	GK	GK	1.9K	2.0K	2.2K	1.8K	GK	1.8K	1.9K	(1.9)SK	1.9K	2.0K	2.3K	2.2K	2.0FK	2.0FK	1.9HK
15	1.9K	2.0K	1.9FK	1.9K	1.9K	2.1K	1.9HK	AK	(1.6)JKA	(1.5)AK	1.6K	AK	AK	AK	AK	1.8K	1.8K	1.9HK	2.1HK	2.0FK	2.1F	2.0	2.0	1.9
16	1.9	2.0F	(1.8)F	2.0	1.9F	2.1	G	1.8	G	1.6	1.6	A	1.9	A	1.6	1.7	1.9	1.9	2.0	2.2	2.1F	(1.9)SH	2.1	2.0
17	2.0F	(2.0)F	(2.0)JF	2.0	2.0	2.2	2.2	(1.9)A	A	2.1	2.1	1.7	1.9H	(1.8)A	(1.9)S	(1.8)S	1.9	2.1	2.1	2.2	2.0	2.0	2.0	1.9
18	2.0	1.9F	2.0	2.2F	2.1	2.0	2.3	1.9	1.8	1.9	2.0	1.7	1.6	1.9	2.0H	2.0	2.0	1.9	2.1	2.1	(2.2)JA	2.1	2.0	2.0
19	(2.1)S	(1.9)AS	1.9	(1.9)AS	(1.9)F	2.1	(1.9)S	1.9H	2.0	C	C	C	1.8	2.0	2.0	2.2	2.0	2.0H	(2.1)A	2.1	2.1	2.0	2.2	(2.0)FA
20	2.0F	2.1	2.1	1.9	2.0F	2.3	2.0H	2.3H	2.0H	2.1	2.2	2.0	2.1	1.9H	2.1	2.0H	2.0	1.9	2.0	2.1	A	A	2.0	2.0F
21	2.0F	(2.0)Z	A	A	A	(2.4)A	2.0	2.3	(2.2)H	2.0H	2.2	2.0H	2.1	1.9	2.1	1.9H	2.1H	2.2	2.1	2.2	2.0	2.1	2.0	2.1
22	2.0	2.0	2.1	(2.2)SA	(2.1)SF	2.5	(2.1)S	2.1	1.8	1.6HK	1.9HK	1.9K	2.0K	1.8HK	1.9K	1.9K	1.8K	1.9K	2.0HK	2.0K	2.1K	2.0	1.9	1.9
23	A	1.9	2.0	2.0F	1.9F	2.1F	(1.8)S	1.6	G	G	1.6	A	1.9H	1.6H	1.7	A	1.9	1.7	1.9	2.0	1.9	1.9	1.9	1.8
24	1.9	1.9	1.9	2.0	1.8	2.1	(2.0)F	G	(2.0)S	G	1.8S	1.8H	1.9H	1.8H	1.9	1.8	1.9	1.9	2.1	2.2	2.2	2.0	2.0	C
25	2.0	2.0	1.9F	2.0F	2.0F	2.1	2.2	2.2H	2.1	2.0H	1.9	C	2.0	2.0	2.0	2.1F	2.0F	1.9	1.9F	1.9F	1.9F	1.9	1.8	1.9
26	2.3	(1.9)S	1.9F	1.9F	(2.1)S	2.2	2.3	2.1	2.0H	2.0	1.9H	(1.6)AJ	1.7H	1.9	1.9	2.0H	1.9H	2.1	2.1	2.1	2.2	2.1	(2.1)S	1.9
27	2.0	1.9	1.9	2.0	2.0	2.2	2.2H	1.8H	2.4	2.3	(2.2)P	1.7H	1.5	1.8	1.8	(1.9)S	(1.8)JS	1.9	2.0	2.0	(2.1)JS	2.0	2.0	2.0
28	2.0	2.0	2.1	2.0	2.0	2.0	2.3	2.2	G	1.9	2.1	2.2	2.1	1.8FH	2.0FH	2.0	2.0	2.1H	2.3	2.2F	2.1F	2.0F	2.0F	(2.0)SA
29	(2.0)SF	1.9F	(2.0)SF	(2.1)F	(2.1)SH	2.4	(2.1)S	(2.2)F	2.0H	2.0H	2.0H	2.2	2.2	2.1	2.0	2.0K	2.0K	1.9K	1.9K	2.0K	(1.8)SK	2.0K	2.0K	1.8FK
30	Z1.9FK	2.0FK	SK	2.1FK	EK	(2.1)FK	GK	GK	GK	GK	GK	GK	GK	GK	GK	1.6K	1.8K	1.9	1.9H	2.0	2.0	1.9F	1.9F	1.9
31																								
Median	2.0	2.0	2.0	2.0	2.0	2.2	2.1	1.9	2.0	2.0	2.0	1.9	1.9	1.8	1.9	1.9	2.0	1.9	2.1	2.1	2.1	2.0	2.0	2.0
Count	29	30	27	29	28	29	29	28	28	29	28	23	28	26	29	29	30	29	29	30	28	29	30	29

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Form adopted June 1946

TABLE 82

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

IONOSPHERIC DATA

(M3000)F2 (Characteristic), ____ (Unit), June (Month), 1952

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: Mc C., A.C.K., R.F.B., E.J.W.

Calculated by: Mc C., A.C.K., R.F.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	30	29	29	31	29	(33)^A	31	30	(29)^H	34	31^H	(27)^P	24	27	28	30	(28)^A	A	33	32	32	30	30	29^F
2	29^F	29	32	30	30^F	33	34^H	33^H	A	(30)^A	A	A	28^H	30	31	30	30	31	31	31	32	31	32	31
3	29	30	31	32^F	30	32	31	31	30	30^H	31	30^H	29	29	30	29	32	31	32	32	34	30	30	30
4	30	30	30	31	31	31	34	24^H	28	33^H	31^H	25^H	29^H	23^H	25	28	29	30	32	33	30	31	30	28
5	30	31	31	30	30	32	(29)^H	30^H	30	(30)^H	30^H	30^H	(33)^H	29^H	30	30	31	28	32	32^F	32	30	30	31^F
6	29^F	30	31^F	30^F	29	32^H	34	30^H	31	36	29^H	29	30	29^H	31	31	30	31	31	(31)^A	A	32	30	30
7	31	31	31	30	29	A	A	29	33^H	(33)^H	31	31	30	30	30	29	30	29	33	31	31	30	31	31
8	(29)^S	(29)^J_S	28	27	27^K	34^K	G^K	G^K	32^K	30^K	29^K	31^K	(24)^H_K	25^K	27^K	(26)^H_K	27^K	29^K	31^K	31^K	29^K	29^K	28^K	^K(29)^A_F
9	28^K	^K(32)^J_S	28^K	^K(28)^J_A	30^K	32^K	34^K	G^K	G^K	G^K	G^K	G^K	26^K	S^K	26^K	25^K	28^K	28^K	30^K	30^K	29^K	29	29	29
10	29	31	31^F	31^F	28	32	34	A	(34)^H	31^H	31^H	32	30	31	32	30	31	30	30	32	31	30	30	31
11	(30)^A_S	(32)^A_S	A	29	30	30	32	(21)^S	26	G	25	27	29	24	23	28	30	30^H	31	33	(31)^A	30	31	29
12	31^F	31^F	(31)^A_S	31^H	(29)^S_A	(25)^S_A	G	28	31^H	G	29	A	A	A	26	30	30	31	(30)^A	31	31	(30)^S	30	(30)^S
13	30	30	(27)^A	31	31^F	35	(32)^A	30	30^H	(30)^A	33	31^H	28	22	31	30	32	32^H	A	28	31	31	30	(30)^J_S
14	31	31	(30)^J_S	32^F	(28)^J_S	29	(33)^H_K	G^K	G^K	28^K	30^K	32^K	27^K	G^K	27^K	28^K	(28)^S_K	28^K	30^K	33^K	32^K	30^F_K	29^F_K	28^H_K
15	28^K	30^F_K	29^F_K	29^K	28^K	31^K	28^H_K	A^K	^K(25)^J_A	(23)^A_K	25^K	A^K	A^K	A^K	A^K	27^K	27^K	28^H_K	31^H_K	30^F_K	31^F	30	30	28
16	29	30^F	(27)^F	30	28^F	31	G	27	G	25	24	A	29	A	25	26	29	29	30	32	31	(29)^S_H	31	30
17	29^F	(29)^F	(30)^J_F	30	30	32	32	(28)^A	A	31	31	26	28^H	(27)^A	(28)^S	(27)^S	29	31	31	32	30	30	29	29
18	30	29^F	30	32^F	31	30	34	29	27	29	30	26	25	29	30^H	30	29	28	31	31	(32)^J_A	31	30	30
19	(31)^S	(28)^A_S	29	(28)^A_S	(29)^F	31	(29)^S	29^H	30	C	C	C	27	29	30	32	30	30^H	(31)^A	31	31	30	32	(30)^F_H
20	29^F	31	31	29	30^F	33	30^H	33^H	30^H	31	32	30	31	29^H	31	30^H	30	29	30	31	A	A	30	30^F
21	30^F	(30)^Z	A	A	A	(35)^A	30	33	(32)^H	30^H	32	30^H	31	29	31	29^H	31^H	32	31	32	30	31	30	31
22	30	30	31	(32)^S_A	(31)^S_F	36	(31)^S	31	27	24^H_K	29^H_K	29^K	29^K	27^H_K	28^K	29^K	28^K	28^K	30^H_K	30^K	31^K	30	28	28
23	A	28	30	30^F	28^F	31^F	(27)^S	24	G	G	24	A	28^H	25^H	26	A	28	26	28	29	29	29	29	27
24	29	29	28	29	27	31	(30)^F	G	(30)^S	G	27^S	27^H	28^H	27^H	28	27	29	29	31	32	32	30	30	C
25	30	30	29^F	30^F	30^F	31	32	32^H	31	29^H	28	C	30	30	30	31^F	30^F	28^F	28^F	29^F	29^F	28	27	28
26	33	(29)^S	28^F	28^F	(31)^S	32	33	31	30^H	30	28^H	(25)^A_J	26^H	28	29	30^H	28^H	31	31	31	32	31	(31)^S	28
27	30	29	29	30	30	32	32^H	27^H	34	33	(32)^P	25^H	22	27	27	(28)^S	(27)^J_S	29	30	30	(31)^J_S	29	29	30
28	30	29	31	30	30	30	34	32	G	28	31	32	31	27^F_H	30^F_H	30	30	31^H	33	32^F	31^F	30^F	30^F	(30)^S_A
29	(30)^S_F	29^F	(30)^S_F	(31)^F	(31)^S_H	34	(31)^S	(32)^F	30^H	30^H	30^H	32	32	31	30	30^K	30^K	28^K	28^K	30^K	(28)^S_K	29^K	30^K	27^F_K
30	^K28^Z_F	29^F_K	S^K	31^F_K	E^K	(31)^F_K	G^K	G^K	G^K	G^K	G^K	G^K	G^K	G^K	G^K	24^K	27^K	29	29^H	30	30	28^F	28^F	28
31																								
Median	30	30	30	30	30	32	31	29	30	30	30	29	28	28	29	29	30	29	31	31	31	30	30	30
Count	29	30	27	29	28	29	29	28	28	29	28	23	28	26	29	29	30	29	29	30	28	29	30	29

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

U. S. GOVERNMENT PRINTING OFFICE 1946 O - 703519

TABLE 83

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

(M3000)F1 (Characteristic), ____ (Unit), June (Month), 1952

National Bureau of Standards (Institution)

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

Scaled by: McC., A.C.K., R.F.B., E.J.W.

Calculated by: McC., A.C.K., R.F.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							A	3.7	A	A	4.0H	3.9	A	3.8	A	A	A	A	A	A				
2							L	A	A	A	A	A	A	3.9	3.9	3.7	3.5H	3.6	L	L				
3						L	3.7	3.8	4.0	4.0	3.9	4.0	3.9	3.9	3.9	3.7	3.7	3.7	LA	L				
4						L	L	3.7	3.9	4.0H	3.9H	3.9H	4.0H	3.8H	3.7	3.6	3.6	3.5	3.5	A				
5						A	3.5H	3.6H	4.0H	4.1H	3.9H	4.0H	(3.9)H	3.7	3.8	3.6	3.5	3.5	L	L				
6						L	L	3.5H	3.7H	3.8	3.7	4.0	A	3.8H	(3.5)A	(3.6)A	A	3.6H	(3.7)L	A				
7						A	A	A	3.9	4.0	4.1	4.0	4.0H	4.0H	3.6	3.5H	(3.8)S	A	A	A				
8						QK	3.5K	3.6K	3.6K	3.6K	3.7HK	4.0K	4.0HK	3.9K	3.6K	(3.6)PK	3.5HK	3.4K	3.4K	QK				
9						QK	LK	4.0K	3.7K	4.0K	3.8K	4.0HK	4.0K	3.8K	3.8K	3.7K	3.7K	3.6HK	A	LK				
10						3.9	L	A	3.7	A	3.8	A	3.9	A	3.9	3.8	3.8	3.4H	3.6	L				
11						Q	3.5	3.7	3.7	3.9	(4.0)S	4.0	4.2	3.9	A	A	3.7H	3.8H	3.7	A				
12						(3.5)L	3.7H	3.9H	3.8H	4.0	A	A	A	A	3.8	A	3.7H	A	A	A				
13						Q	A	A	3.8H	A	3.8	4.1	4.3H	A	A	4.0H	A	A	A	A				
14						Q	3.9HK	4.0K	(3.8)SK	4.0HK	4.3K	4.0K	3.8K	3.8HK	3.7K	3.6K	3.7K	3.6HK	3.5K	LK				
15						QK	3.5K	AK	3.5K	3.8K	3.9K	AK	AK	AK	AK	3.9HK	3.9HK	3.8HK	3.5K	LK				
16						Q	3.6	3.8	3.8H	3.8	3.7	A	4.0H	A	A	3.8	3.7	3.6	3.6	L				
17						Q	L	(3.7)H	A	3.8	3.8H	4.1	4.1	(3.5)A	3.9	A	(3.8)S	3.5H	3.5	A				
18						L	3.5	(3.6)S	3.9	3.8	3.8	3.9	3.8	3.9	3.7	3.9H	A	3.5	3.6	A				
19						A	3.5	3.6	3.8	C	C	C	4.0	3.8	3.7	3.8	3.6H	3.6H	A	A				
20						L	3.6	4.0	3.5H	3.7H	A	4.0H	4.0H	4.0H	3.8H	3.7H	3.6H	3.8	A	A				
21						A	A	3.8	3.9	A	A	A	4.2H	3.9	3.9H	3.9	A	3.6	L	L				
22						Q	L	4.1	(3.7)L	3.8K	3.8K	3.8K	3.8K	3.8K	3.7K	3.8K	3.6HK	3.4K	LK	QK				
23						Q	(3.4)L	3.7	3.7H	3.8H	A	A	3.8H	(4.0)H	A	A	3.8	3.6	3.5	L				
24						Q	(3.7)L	3.8	(3.9)S	3.9	A	3.9	3.9H	3.9H	3.9H	3.8	3.6	3.4	3.5	L				
25						A	A	A	3.6	3.8H	3.9	C	3.7H	3.8H	3.8H	3.8H	3.8H	(3.5)S	(3.3)L	L				
26						Q	L	L	A	3.8	3.9	4.1	3.9H	3.7	3.9	3.8H	3.6H	3.7	L	L				
27						L	3.7	3.8H	3.8	4.0	3.9	4.0H	4.2H	4.0H	4.0	3.7	3.8	3.6	3.5	A				
28						Q	L	4.1	4.1	3.8	3.9H	4.0H	3.8H	4.1H	4.0A	A	3.5	(3.6)A	L	A				
29						Q	L	(3.9)F	3.6H	3.8H	3.9H	4.0	3.8H	4.0H	4.0	3.6K	3.5K	3.4K	3.5K	LK				
30						QK	3.4FK	3.5HK	3.6HK	3.8SK	3.9HK	4.1K	3.8HK	4.0HK	3.8HK	3.7HK	3.5K	3.5H	3.5	L				
31																								
Median						—	3.5	3.8	3.8	3.8	3.9	4.0	3.9	3.9	3.8	3.7	3.7	3.6	3.5	—				
Count						2	15	23	26	24	23	21	25	25	24	24	25	26	16					

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

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TABLE 84

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

Form adopted June 1946

IONOSPHERIC DATA

(M1500)E (Characteristic), _____ (Unit), June (Month), 1952

Observed at Washington, D.C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

National Bureau of Standards (Institution)

Scaled by: McC., A.C.K., R.F.B., E.J.W.

Calculated by: McC., A.C.K., R.F.B.

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	A	4.5	4.4	4.5	A	A	A	A	A	4.4	4.3	4.4	4.3	A				
2						S	A	A	A	A	A	A	A	A	A	4.7	4.4	4.4	4.3	4.0^{H}				
3						S	4.4	A	A	A	A	A	4.5	A	$(4.5)^{P}$	4.5	4.3	4.3	4.5	A				
4						S	A	$(4.5)^{A}$	4.7	A	A	A	4.5	4.2	4.4	4.3	4.3	4.4	4.2	A				
5						A	A	A	A	4.4	4.3	4.4	4.4	4.2	4.2	4.2	4.3	4.3	4.3	A				
6						S	4.4	4.3	A	$(4.3)^{P}$	A	A	4.4	4.2	4.3	4.3	4.3	4.3	4.3	A				
7						A	A	4.3	A	4.4	A	A	4.4	A	A	4.1	4.0	4.2	4.2	A				
8						4.6^{K}	4.0^{K}	4.1^{K}	A^{K}	$(4.3)^{P}_{K}$	4.3^{K}	4.3^{K}	A^{K}	A^{K}	A^{K}	4.1^{K}	4.2^{K}	4.3^{K}	4.2^{K}	S^{K}				
9						S^{K}	A^{K}	A^{K}	A^{K}	A^{K}	A^{K}	$(4.2)^{P}_{K}$	4.2^{K}	A^{K}	A^{K}	4.2^{K}	4.3^{K}	4.3^{K}	4.4^{K}	A^{K}				
10						A	A	A	4.5	4.6	A	A	A	A	A	A	4.3	4.3	4.3	A				
11						S	A	4.2	A	4.2	4.4	A	A	4.2	A	4.4	4.2	4.3	4.3	A				
12						S	A	4.2^{H}	A	A	A	A	A	4.3	4.2	4.4	4.2	4.0	4.1	A				
13						A	A	4.3	A	4.5	A	A	A	A	A	$(4.3)^{P}$	4.2	4.3	$(4.3)^{A}$	S				
14						A	A^{K}	A^{K}	4.3^{H}_{K}	4.0^{K}	4.4^{K}	4.4^{K}	4.2^{K}	4.1^{K}	4.1^{K}	4.2^{K}	A^{K}	4.4^{K}	4.3^{K}	A^{K}				
15						A^{K}	A^{K}	4.4^{K}	A^{K}	A^{K}	A	A^{K}	A^{K}	A^{K}	4.3^{K}	4.3^{K}	4.3^{K}	4.2^{K}	4.3^{K}	A^{K}				
16						A	A	4.5	A	A	A	A	A	4.3	4.2	4.3	4.3	4.4	A	$(4.5)^{A}$				
17						S	A	A	A	A	A	A	A	A	A	A	A	A	4.0	A				
18						S	A	4.4	4.4	4.4	A	A	A	4.3	4.2	4.2	4.4	4.3	4.4	A				
19						S	A	4.4	4.3^{H}	C	C	C	A	A	A	A	4.4	4.3	4.3	A				
20						A	A	A	A	A	A	A	A	4.1	4.1	4.2	4.4	4.1	4.3	A				
21						A	A	A	A	A	A	A	A	A	A	4.3	4.3^{H}	4.4	4.3	4.3				
22						A	A	4.5	4.6	A^{K}	A^{K}	A^{K}	A^{K}	A^{K}	A^{K}	4.3^{K}	4.4^{K}	4.3^{K}	4.3^{K}	4.3^{K}				
23						$(4.2)^{S}$	A	A	A	4.1	4.3	4.5	A	A	A	A	4.3	4.4	4.3	S				
24						S	A	A	A	A	A	A	A	A	A	A	4.2	4.0	4.0	A				
25						A	A	A	A	A	A	C	A	A	A	A	$(4.2)^{A}$	$(4.3)^{P}$	A	4.2				
26						$(3.8)^{P}$	4.0	A	4.4	A	4.5	A	A	A	A	4.3	4.3	A	4.4	A				
27						S	4.2^{H}	A	4.6	A	4.4	A	A	A	A	A	A	$(4.2)^{S}$	4.2	A				
28						S	4.0	4.3	4.4	4.3	4.3	4.5	$(4.5)^{A}$	4.5	A	$(4.4)^{A}$	$(4.2)^{A}$	4.3	4.4	A				
29						A	$(4.3)^{A}$	$(4.4)^{A}$	A	4.4	4.2	A	A	4.3	4.3	A^{K}	A^{K}	4.4^{K}	S^{K}	S^{K}				
30						A^{K}	4.5^{F}_{K}	4.4^{K}	A^{K}	4.3^{K}	4.5^{K}	A^{K}	A^{K}	A^{K}	4.5^{K}	$(4.1)^{P}_{K}$	3.9^{K}	4.2	4.1	4.2				
31																								
Median						—	4.2	4.4	4.4	4.4	4.4	4.4	4.4	4.2	4.2	4.3	4.3	4.3	4.3	4.2				
Count						3	8	16	10	14	10	6	8	11	12	22	26	28	27	6				

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ■

Table 85

Ionospheric Storminess at Washington, D. C.

June 1952

Day	Ionospheric character* 00-12 GCT	Ionospheric character* 12-24 GCT	Principal storms Beginning GCT	Principal storms End GCT	Geomagnetic character** 00-12 GCT	Geomagnetic character** 12-24 GCT
1	1	3			3	2
2	1	1			2	2
3	0	2			2	2
4	0	3			2	1
5	1	1			2	2
6	1	1			3	1
7	1	2			2	2
8	2	4	0900	----	4	4
9	4	4	----	----	4	4
10	1	3	----	0200	3	3
11	2	3			4	3
12	2	3			3	2
13	3	1			1	2
14	1	4	1100	----	3	4
15	4	5	----	----	4	3
16	2	3	----	0100	4	3
17	1	3			4	2
18	1	2			3	3
19	2	2			2	2
20	1	1			2	2
21	2	2			1	2
22	1	4	1400	----	2	4
23	2	3	----	0200	5	4
24	2	2			5	4
25	1	1			2	3
26	1	2			3	3
27	1	3			3	3
28	2	1			2	2
29	2	4	2000	----	2	3
30	4	6	----	2200	6	3

*Ionosphere character figure (I-figure) for ionospheric storminess at Washington, D. C., during 12-hour period, on an arbitrary scale of 0 to 9, 9 representing the greatest disturbance.

**Average for 12 hours of Cheltenham, Maryland, geomagnetic K-figures on an arbitrary scale of 0 to 9, 9 representing the greatest disturbance.

----Dashes indicate continuing storm.

Table 86a

Radio Propagation Quality Figures
(Including Comparisons with CRPL Warnings, Short Term and Advance Forecasts)

May 1952

Day	North Atlantic quality figure		CRPL Warning WWV Broad-cast		Short-term forecasts issued about one hour in advance of 12-hour period, UT:				Advance forecasts (J-reports) for whole day; issued in advance by:			Geomag-netic K_{Ch}	
	Half Day UT		Half Day UT		00 to 12	06 to 18	12 to 24	18 to 06	1 to 3/4 days	4/5 to 7 days	8 to 25 days	Half day UT	
May	(1)	(2)	(1)	(2)								(1)	(2)
1	(2)	5	W	W	(3)	(2)	(4)	(4)	(4)	(3)	X	(5)	(4)
2	(3)	5	W	W	(4)	(3)	5	(4)	(4)	(3)	X	(4)	(4)
3	(2)	5	W	W	(3)	(2)	(4)	5	(4)	(4)	X	(4)	(4)
4	(2)	(4)	W	W	(3)	(2)	(4)	(4)	(4)	5	X	(4)	(4)
5	(3)	5	W	W	(3)	(2)	(4)	(4)	(4)	5	X	(4)	3
6	(4)	6	U	U	5	5	6	6	5	5		(4)	3
7	(4)	(4)	U	W	5	(4)	6	5	5	5		(5)	(5)
8	(3)	5	W	(W)	(4)	(3)	5	6	5	6		(4)	3
9	5	6			6	5	6	6	6	6		1	1
10	5	7			6	5	6	6	6	6		2	1
11	7	7			6	6	7	7	6	6		1	3
12	5	6			6	5	6	7	6	5		3	2
13	5	6			6	5	6	6	6	5		2	3
14	6	7			6	6	7	6	6	6		3	2
15	7	7			7	6	7	7	6	5		1	2
16	7	7			7	7	7	7	5	5		2	2
17	7	7			7	6	7	7	7	5		2	2
18	5	7	U	U	6	(4)	6	5	6	6		(5)	(4)
19	(4)	7			6	5	6	5	6	6		(5)	3
20	6	6			6	5	6	6	6	6		(4)	3
21	6	6			6	5	6	6	6	7		3	3
22	7	7			6	5	(4)	6	6	7		2	1
23	6	7			6	6	7	7	6	7		2	3
24	7	7			7	6	7	7	7	5		3	3
25	6	7			7	5	6	6	(4)	(4)	X	(4)	2
26	7	6			6	6	6	5	(4)	(3)	X	3	(5)
27	(2)	5	W	W	(4)	(3)	(4)	5	(3)	(3)	X	(5)	(4)
28	(4)	7	W	W	(4)	(3)	5	(4)	(3)	(3)	X	(4)	(5)
29	(3)	5	W	W	(4)	(3)	(4)	5	(3)	(3)	X	(4)	(4)
30	(4)	6	W	W	(4)	(4)	5	5	(3)	(3)	X	(4)	3
31	(4)	6	U	(U)	5	(4)	5	6	(4)	(4)	X	(4)	3
Score:													
P					11		17		9	7			
S					26		23		21	18			
H			16		9		1		7	7			
(M)					4		0		5	3			
M			1		1		1		2	4			
(O)					0		5		0	0			
O			12		0		1		2	2			
G			33		17		23		15	15			

Scales:
Q-scale of Radio Propagation Quality

(1) - useless
(2) - very poor
(3) - poor
(4) - poor to fair
5 - fair
6 - fair to good
7 - good
8 - very good
9 - excellent

K-scale of Geomagnetic Activity

0 to 9, 9 representing the greatest disturbance; $K_{Ch} \geq 4$ indicates significant disturbance, enclosed in ( ) for emphasis

Symbols:

W- disturbed; U- unsettled; N- normal, left blank in Table; ( ) broadcast for one quarter day. X- probable disturbed date.

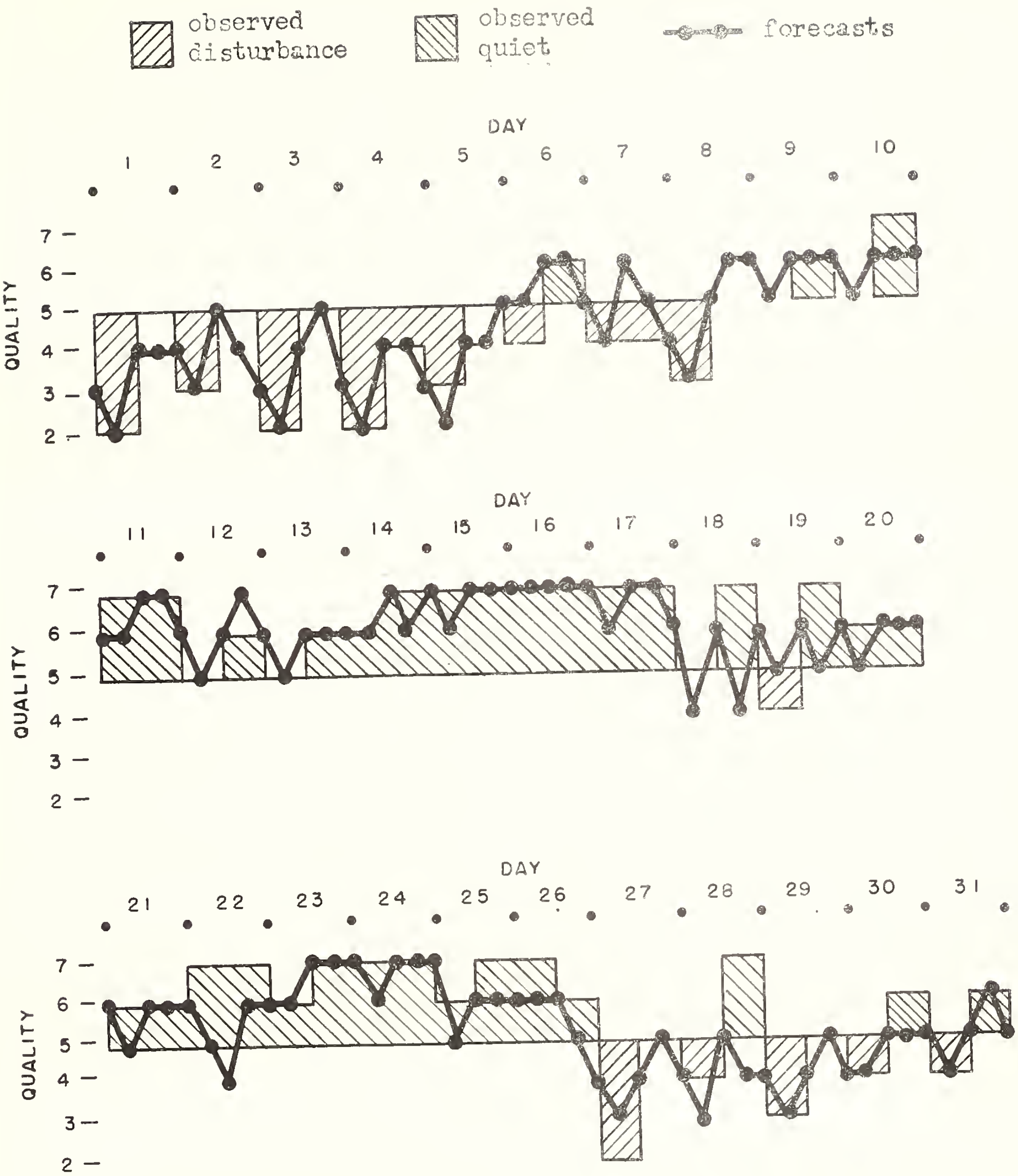
Scoring:

P - Perfect forecast; observed equal to forecast
S - Satisfactory forecast; P plus other times correctly designated as disturbed or quiet, within one grade
H - Storm ($Q \leq 4$) hit, except (M)
(M)- Storm hit, severity underestimated by two grades or a 5 forecast for Q=4 day
M - Storm missed
(O)- Overwarning on observed fair day
O - Other overwarnings
G - Good (quiet) day forecast

Note: See above for scoring legend, scales and symbols; see text for scoring conventions and other information.

Table 86b

Short Term Forecasts--May 1952



Advance Forecasts (1 to 3/4 days ahead) -- May 1952

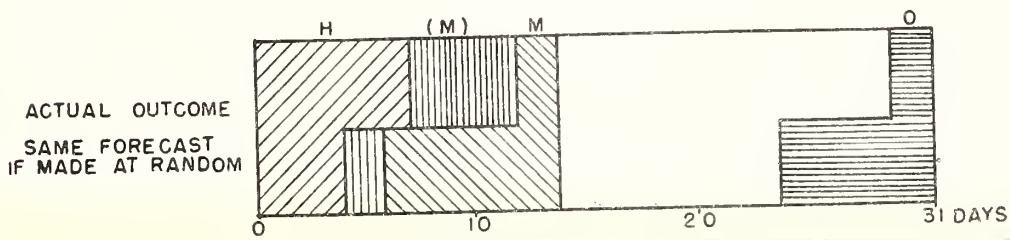


Table 87a

Coronal observations at Climax, Colorado (5303A), east limb

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Jun 4.9a	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	3	3	3	4	5	6	4	4	3	3	3	3	3	3	3	X	X	X	X	X	X
5.7a	-	-	-	-	-	-	-	-	2	3	3	4	6	6	3	3	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	-	-	-	-	-	-
6.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	8	6	4	3	3	3	4	4	4	4	3	3	-	-	-
7.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-
8.7	-	-	-	-	-	-	-	-	3	3	-	-	-	-	-	-	-	3	3	4	4	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	-
9.7	-	-	-	_a	_a	_a	_a	_a	_a	-	-	-	-	-	2	3	3	3	3	3	13	4	3	3	-	-	-	-	_a	_a	_a	_a	_a	_a	_a	_a	_a
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	6	6	6	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	3	4	4	4	4	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-
13.7	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	9	12	4	3	3	3	6	10	8	3	-	-	-	-	-	-	-	-	-	-	-	-
14.6	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	2	2	2	2	3	9	13	6	-	-	-	-	-	-	-	-	-	-	-	-	-
15.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	4	4	3	-	-	-	-	-	-	-	-	-	-	-	-
16.7	-	X	X	X	X	X	X	X	X	X	-	3	3	3	3	9	10	13	12	8	6	5	5	3	3	3	-	-	-	-	-	-	-	-	-	-	-
17.6a	-	-	-	-	-	-	-	-	-	-	-	3	3	3	12	17	13	15	16	10	6	4	4	3	3	-	-	-	-	-	-	-	-	-	-	-	-
18.6a	-	-	-	-	-	-	-	-	-	-	-	3	3	3	6	6	8	6	8	6	5	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.6a	-	-	-	-	-	-	-	-	-	-	-	3	3	3	6	10	9	5	5	5	4	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.6a	-	-	-	-	-	-	-	-	-	-	3	3	3	6	6	5	5	5	5	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	4	3	3	4	4	4	4	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-
22.6a	X	X	X	X	X	X	X	X	X	-	-	-	-	3	3	3	5	6	3	8	4	3	3	3	3	-	-	-	-	-	X	X	X	X	X	X	X
23.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	4	6	4	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.6a	-	-	-	-	-	-	-	-	-	-	-	-	3	3	4	4	3	3	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X

Table 88a

Coronal observations at Climax, Colorado (6374A), east limb

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Jun 4.9a	X	X	X	X	X	X	X	X	X	X	3	3	4	4	4	5	5	7	6	5	6	12	5	6	5	6	4	6	4	3	3	X	X	X	X	X	X
5.7a	4	3	3	3	3	5	4	4	5	4	3	5	3	3	4	3	4	2	2	2	2	2	2	3	5	5	6	2	2	2	2	2	2	3	3	3	3
6.7	3	3	3	3	2	2	2	2	2	2	2	3	3	4	3	5	3	4	3	3	2	3	2	2	2	2	-	-	-	-	-	-	-	2	2	3	3
7.6a	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	3	3	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.7	3	3	3	3	2	2	2	2	2	2	3	3	3	4	4	5	4	4	4	3	8	2	2	2	2	3	3	2	2	2	2	3	3	3	3	3	3
9.7	3	3	3	3a	_a	_a	_a	_a	_a	-	-	3	3	3	3	3	6	5	4	3	10	4	3	2	3	3	2	2	_a	_a	_a	_a	_a	_a	_a	_a	_a
10.7	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	6	3	4	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-
11.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-
12.7a	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	2	2	2	2	2	3	6	3	3	3	3	2	2	2	2	2	2	2	2	-	-
13.7	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	4	4	9	16	8	4	-	-	-	-	-	-	-	-	-	-	-	-
14.6	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	2	2	2	2	2	8	12	5	3	-	-	-	-	-	-	-	-	-	-	-	-
15.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	9	4	3	3	-	-	-	-	-	-	-	-	-	-	-
16.7	-	X	X	X	X	X	X	X	X	X	2	2	2	3	8	4	2	2	3	2	2	3	5	6	3	2	2	-	-	-	-	-	-	-	-	-	-
17.6a	2	2	2	2	-	-	-	-	-	-	2	4	3	3	8	12	2	2	7	2	4	6	8	8	4	3	4	3	3	3	3	2	2	2	2	2	2
18.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	4	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	4	3	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
20.6a	-	-	-	-	-	-	-	-	-	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	4	4	4	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.6a	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X
23.6a	-	-	-	-	-	-	-	-	-	-	-	3	3	3	4	3	3	3	3	5	4	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24.6a	-	-	-	-	-	-	-	3	3	3	3	4	4	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X

Table 89a

Coronal Observations at Climax, Colorado (6702A), east limb

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Jun 4.9a	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	-	-	-	-	X	X	X	X	X	X
5.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-
9.7	-	-	-	_a	_a	_a	_a	_a	_a	-	-	-	-	-	-	-	-	-	2	2	2	2	-	-	-	-	-	-	_a	_a	_a	_a	_a	_a	_a	_a	_a
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.7	-	X	X	X	X	X	X	X	X	X	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
17.6a	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	4	3	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
18.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
19.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.6a	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X
23.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	-	-	-	-	-	-	-	-
24.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X

Table 90a

Coronal observations at Sacramento Peak, New Mexico (5303A), east limb

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Jun 3.7	-	-	-	2	2	3	2	2	3	4	5	9	5	5	6	[illegible]	7	6	6	6	14	40	16	12	7	7	6	7	10	11	10	6	5	5	4	3	2
4.6	-	-	-	-	-	-	2	2	5	7	7	8	8	5	6	5	4	4	5	8	14	30	16	14	8	5	4	5	6	8	7	7	5	5	4	2	-
6.8	-	-	-	-	2	2	3	3	4	4	[illegible]	4	4	4	3	4	4	4	4	4	6	8	14	14	11	8	5	8	7	6	6	9	6	5	3	3	-
7.6	-	-	-	-	-	-	2	3	6	7	5	5	4	3	3	3	5	4	5	11	16	10	11	12	12	8	5	5	6	8	10	11	11	3	-	-	-
8.6	-	-	-	-	2	2	2	3	4	4	4	3	3	3	4	4	3	4	4	6	7	8	6	5	6	6	6	5	4	5	7	8	7	6	3	3	-
9.7a	2	2	2	2	3	3	3	3	4	4	4	3	3	4	4	4	4	5	5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10.7	-	-	2	2	3	3	3	3	4	5	4	4	5	5	5	5	7	8	8	3	14	15	5	5	5	4	4	5	4	4	4	4	3	3	4	3	3
13.6	2	2	2	3	3	3	3	4	4	3	3	3	3	3	3	16	18	16	14	4	5	12	18	20	18	5	3	3	3	2	2	3	3	3	3	3	2
14.7	2	2	3	3	3	3	3	4	4	4	4	3	3	4	4	11	15	[illegible]	8	5	3	11	20	28	22	8	3	3	3	3	3	3	2	2	2	4	4
16.7a	2	2	2	2	2	3	3	3	3	4	4	4	4	4	4	5	14	14	[illegible]	16	14	12	12	11	8	5	4	3	2	2	2	2	2	-	-	-	-
18.7	3	3	3	3	4	4	3	3	4	4	4	4	4	4	8	11	14	16	14	14	15	12	9	5	4	3	3	3	3	2	2	3	4	4	2	2	2
19.8	2	2	3	3	5	5	4	4	5	4	4	6	6	7	8	11	15	12	8	8	8	6	5	3	3	4	4	3	3	3	3	3	3	3	3	3	2
20.9	2	2	3	3	3	4	4	4	4	4	4	5	5	5	8	12	14	14	13	11	10	8	5	5	5	4	4	4	3	3	3	3	4	4	4	2	2
21.7	-	-	-	2	2	3	4	5	4	3	3	4	5	8	14	16	20	28	32	39	34	20	16	14	8	5	6	9	9	9	8	4	3	2	3	4	2
22.7	-	-	-	2	3	3	3	4	4	3	3	3	4	5	12	14	15	13	18	20	28	40	14	14	8	5	5	5	4	4	3	3	3	3	3	3	2
23.6	2	2	3	3	3	3	4	3	3	3	4	4	4	8	11	12	13	12	12	14	16	11	9	5	5	3	3	2	5	4	4	4	3	2	2	2	2
24.6	-	-	-	2	3	3	3	3	3	3	3	3	3	8	14	15	12	8	6	7	8	8	9	5	3	4	3	3	3	2	2	2	2	2	2	2	2
25.7	2	2	2	2	2	3	3	3	3	3	3	4	4	10	11	8	5	5	3	4	5	5	4	3	3	4	4	4	3	3	3	2	2	2	2	2	2
26.7a	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	-	-	-	-	2	2	2	2
27.9a	6	6	6	6	6	6	5	5	5	5	5	6	6	7	7	8	8	8	7	7	7	8	8	8	8	7	5	5	5	4	3	4	4	4	5	5	5
30.6a	2	2	2	2	2	3	2	2	2	2	3	3	3	3	3	3	4	4	4	5	6	8	8	7	7	5	4	4	3	4	4	4	4	5	4	2	-

Table 91a

Coronal observations at Sacramento Peak, New Mexico (6374A), east limb

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Jun 3.7	4	4	4	4	4	5	3	3	3	2	2	3	3	5	5	5	5	8	7	6	8	20	14	8	11	13	14	10	5	3	3	2	2	3	3	4	4
4.6	5	5	4	4	5	4	3	2	3	2	3	4	5	5	4	4	6	8	10	8	13	28	11	8	11	12	14	8	6	4	3	3	3	4	3	4	4
6.8	3	3	4	3	3	3	2	2	2	2	2	3	3	4	5	6	6	6	6	7	7	5	2	3	3	3	3	2	3	2	3	2	3	3	3	3	3
7.6	4	3	4	3	3	2	2	2	2	-	2	4	4	4	5	5	8	8	8	14	8	4	2	3	3	3	2	3	2	2	3	2	4	4	3	4	4
8.6	2	3	4	3	2	3	2	-	-	-	-	3	3	4	4	4	5	6	8	6	7	8	2	2	2	2	3	2	2	2	3	2	3	3	4	2	3
9.7a	2	2	2	4	3	2	2	2	2	3	3	3	4	4	3	4	3	4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10.7	2	3	2	2	3	3	2	2	2	3	3	5	5	4	4	4	3	3	3	4	3	5	4	4	3	3	2	2	2	2	2	2	3	3	3	4	2
13.6	3	2	3	2	2	3	2	2	2	2	2	2	2	3	3	3	14	12	3	4	8	7	11	20	16	10	2	5	3	2	2	3	2	2	2	3	3
14.7	4	3	4	4	4	3	3	3	3	3	3	3	3	4	5	8	14	13	2	5	5	8	14	22	21	8	5	2	5	3	3	2	2	2	3	3	2
16.7a	2	3	3	2	3	3	2	2	2	2	2	2	3	3	8	11	11	3	2	-	-	3	5	11	11	6	3	2	2	2	2	2	2	2	2	2	2
18.7	2	2	2	2	2	2	2	2	2	2	2	2	3	3	5	8	5	5	2	2	2	2	3	4	3	3	4	4	3	2	2	2	2	3	2	2	2
19.8	2	2	2	2	2	2	2	2	2	3	3	2	2	3	6	6	7	3	2	2	3	2	2	4	4	2	2	2	2	2	2	2	2	2	3	3	2
20.9	2	2	2	2	3	3	2	2	2	2	2	2	3	2	3	4	5	4	2	2	3	3	3	2	2	2	2	2	2	2	2	2	2	3	3	3	2
21.7	2	3	3	3	2	2	2	2	2	2	2	3	2	2	3	8	3	2	2	11	14	15	3	2	2	3	2	2	2	2	2	2	3	3	2	3	2
22.7	3	2	2	2	2	3	4	3	2	2	3	3	3	4	5	8	8	7	3	12	13	14	3	2	2	2	2	3	2	3	3	3	3	2	3	3	3
23.6	2	2	3	3	3	3	2	2	2	2	3	3	3	2	11	11	9	8	2	5	7	6	2	2	2	2	2	2	2	2	3	3	3	2	2	2	2
24.6	2	3	3	2	4	3	2	2	2	2	3	4	4	5	11	14	11	12	5	8	11	8	4	3	4	3	3	2	2	2	2	3	3	3	3	2	3
25.7	3	2	3	3	3	2	2	2	3	3	3	3	8	7	11	14	12	11	8	7	6	5	4	4	3	4	3	2	2	2	3	2	2	2	2	3	2
26.7a	2	2	3	3	3	3	2	2	2	2	3	3	7	8	8	8	9	7	4	5	4	4	4	3	4	4	4	2	2	2	2	2	2	3	2	2	2
27.9a	3	3	3	3	3	3	2	2	2	2	2	2	3	3	4	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	-	-	-
30.6a	4	5	5	4	5	5	3	3	2	2	3	3	4	7	8	8	7	5	5	7	7	4	2	3	5	6	3	3	2	2	3	3	3	3	2	2	3

Table 92a

Coronal observations at Sacramento Peak, New Mexico (6702A), east limb

Date GCT	Degrees north of the solar equator																		0°	Degrees south of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Jun 3.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.6	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X
8.6	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X
9.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
14.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	4	5	3	2	-	-	-	-	-	-	-	-	-	-	-
16.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	2	2	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.9	-	-	-	-	-	-	-	-	-	-	-	2	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.7	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	3	3	2	2	2	2	2	3	3	2	-	-	-	-	-	-	-	-	-	-	-	-
22.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	3	2	3	5	6	3	3	4	3	-	-	-	-	-	-	-	-	-	-	-	-
23.6	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	3	3	3	3	3	3	3	3	3	2	-	-	-	-	-	-	-	-	-	-	-
24.6	-	-	-	-	-	-	-	-	-	-	-	-	2	3	4	3	3	2	3	3	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 87b

Coronal observations at Climax, Colorado ([illegible]), west limb

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Jun 4.9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5.7a	-	-	-	-	3	3	3	4	3	3	4	4	5	4	5	9	19	19	20	18	[illegible]	16	18	7	5	5	4	3	3	3	3	-	-	-	-	-	-
6.7	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	6	9	13	14	14	14	16	13	10	5	5	4	3	3	3	3	-	-	-	-	-	-
7.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	4	5	6	9	12	12	13	9	6	6	6	4	3	3	-	-	-	-	-	-	-	-
8.7	-	-	-	-	-	3	3	3	3	3	3	3	3	3	3	3	6	10	4	6	8	9	9	6	5	3	3	3	3	3	3	-	-	-	-	-	-
9.7	-	-	-	-	-	-	-	-	-	6	4	3	3	3	3	5	12	17	4	4	6	6	4	4	3	3	3	3	3	4	3	-	-	-	-	-	-
10.7a	-	-	-	-	-	-	3	3	4	4	4	3	3	4	4	4	5	4	4	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-
11.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-
12.7a	-	-	-	-	-	-	-	3	3	3	3	3	3	3	5	6	4	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14.6a	-	-	-	-	-	-	-	-	-	-	-	3	4	4	4	5	5	5	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4	4	4	4	4	-	-	-	-	-	-	-	-	-	-	-	-
16.7a	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	3	4	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.6a	-	-	-	-	-	-	-	3	3	3	3	3	3	3	4	5	6	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	5	5	4	4	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
23.6a	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	[illegible]	X	X	X	X	X	X	X	X	-
24.6a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-

Table 88b

Coronal observations at Climax, Colorado (6374A), west limb

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Jun 4.9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5.7a	3	3	3	3	3	4	4	3	3	4	3	3	3	3	3	3	5	9	6	3	3	3	3	3	4	3	3	2	2	2	2	3	3	3	3	3	4
6.7	3	3	3	2	2	2	2	2	2	2	3	3	3	3	3	4	5	5	3	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3
7.6	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	3	2	2	3	2	2	2	2	2	2	2	-	-	-	-	-	-	-
8.7	3	3	3	3	3	3	3	3	3	3	3	2	2	3	3	2	5	13	2	-	-	-	-	-	-	-	-	-	-	-	2	3	3	3	2	2	3
9.7	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	12	24	6	4	4	3	3	2	-	-	-	-	-	-	-	-	-	-	2	3	3
10.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	6	9	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	3	3	-	-
11.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	8	4	3	4	3	3	4	3	3	3	3	2	2	2	2	2	2	2	2	2	-
12.7a	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	-	-	-	-	-
13.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	3	3	5	4	4	3	3	3	-	-	-	-	-	-	-	-	-	-
14.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	4	3	4	3	3	3	-	-	-	-	-	-	-	-	-	-
15.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
17.6a	2	2	2	2	2	3	3	3	3	3	3	5	3	3	3	3	3	3	2	2	2	2	3	3	3	-	-	-	-	-	-	-	-	-	-	-	2
18.6a	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	2	2	2	3	4	3	3	-	-	-	-	-	-	-	-	-	-	-	-
19.6a	-	-	2	2	2	2	2	2	2	2	3	3	3	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
23.6a	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
24.6a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-

Table 89b

Coronal observations at Climax, Colorado (670[illegible]A), west limb

Date GCT	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Jun 4.9	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
5.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.7	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	2	3	3	3	4	3	2	2	2	2	-	-	-	-	-	-	-	-	-
7.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	[illegible]	2	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-
8.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	[illegible]	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
9.7	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	[illegible]	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
12.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	[illegible]	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-
13.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2		[illegible]	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
17.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	-	3	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-
20.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.6a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
23.6a	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-
24.6a	X	X	X	X	X	X	X	X	[illegible]	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-

Table 90b

Coronal observations at Sacramento Peak, New Mexico (5303A), west limb

Date	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
GCT	90	85	80	75	70	65	50	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Jun 3.7	2	2	2	-	-	-	-	-	-	-	5	8	8	8	7	8	20	40	50	48	40	23	26	20	8	5	5	5	5	6	5	6	7	7	3	-	-
4.6	-	-	-	-	-	-	2	2	-	2	5	8	9	10	11	16	30	40	48	50	44	39	23	24	14	8	9	8	7	8	8	7	2	2	-	-	-
6.8	-	-	-	-	-	2	2	3	4	5	7	7	6	5	5	8	16	17	20	19	19	23	20	16	12	11	8	5	5	6	5	3	2	2	2	2	-
7.6	-	-	-	-	-	2	2	2	3	5	6	5	4	3	4	14	15	15	16	20	23	26	23	20	16	12	11	5	5	5	5	4	2	2	2	-	-
8.6	-	-	-	2	2	2	3	3	3	4	5	5	4	4	5	5	14	15	10	11	15	16	16	14	8	5	8	6	6	7	6	3	2	2	2	-	-
9.7a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	3	3	3	2	2	2
10.7	3	2	2	2	2	3	3	3	3	3	4	4	3	4	4	3	6	11	8	5	5	6	6	6	7	6	5	5	5	4	4	3	2	2	2	2	-
13.6	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	5	6	8	5	5	5	5	5	4	4	3	3	3	2	2	2	2	3	3	2	2	2
14.7a	4	4	4	4	4	4	3	4	4	4	3	3	3	4	8	8	8	8	7	6	5	5	5	4	3	3	4	4	3	3	4	3	2	2	2	2	2
16.7a	-	2	2	2	3	3	3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	3	3	3	3	2	2
18.7a	2	2	2	2	2	2	4	4	4	3	4	3	3	3	4	5	6	5	5	5	4	3	3	3	3	4	3	4	4	3	2	2	2	2	2	4	3
19.6a	2	2	3	3	3	3	3	3	3	3	3	3	3	3	4	4	5	5	5	3	3	3	3	3	4	3	3	3	2	2	2	2	3	3	3	3	2
20.9a	2	2	3	3	3	3	3	3	3	4	4	5	5	5	5	6	8	8	9	5	5	5	4	3	3	5	4	4	4	3	3	3	3	3	3	2	2
21.7a	2	3	3	3	3	4	3	3	3	3	3	3	3	4	4	5	6	10	5	5	5	5	5	3	5	5	3	3	3	2	2	2	2	2	2	-	-
22.7	2	2	3	3	3	3	3	3	3	3	3	3	4	4	3	5	11	12	11	8	5	5	5	5	4	3	3	4	4	4	3	2	2	2	2	-	-
23.6	2	2	3	4	5	5	4	3	4	4	4	5	5	11	13	14	14	11	12	14	16	11	11	8	5	4	4	3	4	4	5	4	4	3	2	2	2
24.6	2	2	2	3	3	3	3	3	3	3	2	3	3	3	11	11	14	11	8	5	5	8	11	10	5	4	3	3	3	3	3	3	3	2	2	2	-
25.7	2	-	-	-	-	-	3	3	4	3	2	2	2	3	5	8	8	8	7	7	7	8	14	16	5	5	5	5	5	5	3	3	2	2	2	2	2
26.7a	2	2	2	2	2	2	3	3	3	2	2	2	2	4	8	6	6	6	5	5	5	10	11	8	5	3	2	2	2	2	4	4	3	2	2	2	2
27.9a	5	4	4	5	5	5	4	4	4	4	4	4	5	7	11	8	8	8	X	X	X	X	X	X	X	X	X	X	X	X	X	5	5	5	5	6	6
30.6	-	-	-	-	-	-	-	3	3	2	3	3	4	6	7	8	10	14	22	20	18	16	14	12	8	5	5	4	5	5	8	8	7	6	5	3	2

Table 91b

Coronal observations at Sacramento Peak, New Mexico (6374A), west limb

Date	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Jun 3.7	4	4	4	4	2	2	2	2	3	3	4	4	4	4	4	4	4	11	16	14	6	5	10	15	5	4	4	2	2	-	-	-	4	4	4	5	4
4.6	4	4	5	5	4	4	3	3	2	3	2	5	4	2	3	3	5	14	32	11	6	5	8	8	5	5	4	2	-	-	2	3	3	5	4	4	5
6.8a	3	2	3	3	3	2	3	3	3	4	4	5	4	4	5	8	11	8	3	3	2	2	2	2	4	3	2	2	2	2	2	2	2	3	3	4	3
7.6	4	3	4	3	2	3	2	2	3	3	4	3	4	3	4	5	3	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2	3	3	4	3	4
8.6	3	3	4	3	3	2	2	2	3	3	3	2	2	3	3	2	12	14	11	5	4	4	3	2	2	2	2	2	2	2	3	3	3	3	4	2	2
9.7a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2	2	3	2	2	2
10.7	2	2	3	3	2	2	3	3	3	3	2	2	2	2	2	3	11	15	11	7	6	4	3	3	3	2	2	2	2	-	2	2	3	3	3	2	2
13.6	3	3	3	2	2	3	2	2	2	2	2	2	2	3	2	2	3	3	3	3	4	4	5	5	5	5	4	3	2	2	2	2	3	4	3	3	3
14.7a	2	2	3	2	2	2	2	3	3	4	2	3	3	4	4	4	4	8	7	5	5	8	9	8	7	7	5	5	3	2	2	2	3	4	4	4	4
16.7a	2	2	3	2	2	2	2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2	2	2	2	2	2
18.7a	2	3	2	2	2	2	2	2	2	2	3	3	3	5	3	2	5	5	4	4	4	5	5	4	5	5	4	2	2	2	2	2	2	3	3	2	2
19.8a	2	3	2	2	2	2	3	3	4	2	2	3	4	4	2	2	3	5	4	3	3	4	4	3	3	4	4	2	3	2	2	2	2	2	2	2	2
20.9a	2	2	-	-	-	2	2	2	2	2	2	2	3	3	3	2	3	3	3	3	5	4	3	3	3	2	3	3	2	2	2	2	2	2	2	3	2
21.7a	2	3	3	3	3	3	3	3	3	3	3	2	3	2	3	3	3	2	2	2	2	2	3	2	4	4	3	2	2	2	3	3	3	3	2	2	2
22.7	3	3	2	2	3	4	3	4	3	3	4	3	8	8	9	8	14	16	5	3	4	5	4	5	8	9	8	3	2	2	3	3	3	4	3	4	3
23.6	2	3	3	3	3	3	2	2	2	2	2	2	2	4	11	10	9	6	3	3	8	7	3	2	3	3	2	2	2	2	2	2	2	2	2	3	2
24.6	3	2	2	2	2	2	3	3	2	2	2	2	2	5	8	14	13	2	2	2	2	4	8	6	3	2	2	2	2	2	2	2	3	2	3	3	2
25.7	2	3	3	2	2	2	2	3	2	2	3	3	4	5	12	11	8	4	3	2	2	3	8	11	2	2	2	-	-	2	2	2	2	2	3	3	3
26.7a	2	2	3	3	2	2	2	2	2	3	3	4	5	7	9	7	5	4	4	2	3	2	11	12	5	4	2	2	2	2	2	3	3	2	2	2	2
27.9a	-	-	-	-	3	3	3	3	3	3	3	3	3	5	5	6	5	4	X	X	X	X	X	X	X	X	X	X	X	X	3	3	3	3	3	3	3
30.6	3	2	3	3	3	3	2	2	3	3	3	3	4	8	7	7	5	2	3	4	3	4	5	4	4	3	2	4	2	2	2	2	2	3	3	3	4

Table 92b

Coronal observations at Sacramento Peak, New Mexico (6702A), west limb

Date	Degrees south of the solar equator																		0°	Degrees north of the solar equator																	
GCT	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5		5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
1952																																					
Jun 3.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	4	2	2	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-
4.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	3	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
6.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	3	2	2	2	2	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-
7.6	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X
8.6	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X	X
9.7a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-
10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2	2	3	3	-	-	-	-	-	-	-	-	-	-	-	-
13.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16.7a	-	-	-	-	-	-	-	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-
18.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19.8a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20.9a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23.6	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	3	3	3	3	3	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-	-
24.6	-	-	-	-	-	-	-	-	-	-	-	-	-	2	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25.7	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	3	3	2	2	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26.7a	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27.9a	-	-	-	-	-	-	-	-	-	2	2	3	3	3	3	2	-	-	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-
30.6	-	-	-	-	-	-	-	-	-	-	-	-	2	3	2	3	2	2	3	3	2	3	2	2	2	-	-	-	-	-	-	-	-	-	-	-	-

Table 93

Particulars of Observations, Climax, Colorado
January - June 1952

Date GCT	Greenline threshold intensity at 45°	90°	135°	225°	270°	315°	Obs.	Meas.
1952								
Jan. 1.7	13	6	10	-	-	-	A	W
2.7	6	5	6	7	8	6	At	W
4.7	4	4	4	7	4	4	A	W
5.7	4	4	4	5	6	3	A	W
8.7	10	6	7	6	6	6	At	W
9.8	6	5	5	8	7	7	A	W
11.7	3	3	4	5	4	5	A	W
14.7	8	7	7	7	6	7	A	W
27.9	5	4	5	8	4	5	At	W
28.7	9	4	6	5	4	5	A	W
29.7	6	7	7	8	7	6	At	W
30.7	4	3	5	5	6	5	At	W
Feb. 1.7	5	5	5	5	5	4	A	W
2.7	5	6	5	-	8	-	At	W
8.7	4	4	5	6	5	5	A	W
9.7	5	5	5	-	-	-	A	W
10.7	4	4	5	5	5	5	At	W
14.6	6	6	7	6	5	6	At	W
16.7	5	6	5	-	5	5	At	W
25.7	10	10	10	9	9	9	A	W
26.9	4	3	13	6	8	8	At	W
29.7	5	5	5	7	5	6	A	W
Mar. 6.7	3	3	4	4	4	3	At	W
8.8	4	4	4	7	3	4	A/At	W
10.9	5	6	6	7	15	7	At	W
13.7	4	5	5	-	8	-	A	W
15.6	-	4	-	-	-	-	A	W
16.7	4	4	5	9	6	6	A	W
17.7	5	5	6	7	-	-	At	W
18.7	7	10	8	5	7	7	At	W
27.9	8	5	7	10	10	-	A	W
28.7	5	5	6	4	5	6	A	W
Apr. 1.7	6	9	9	7	7	5	A	W
4.8	5	5	6	6	6	5	At	W
5.7	5	5	7	5	6	6	A	W
7.8	11	13	12	-	15	-	At	W
8.8	10	9	15	14	12	15	A	W
10.0	8	10	8	12	12	8	At	W
11.7	9	6	8	7	7	6	A	W
14.8	10	9	10	-	12	-	At	W
15.8	9	9	10	9	9	8	At	W
16.6	7	7	8	8	7	7	At	W
17.7	8	8	8	8	7	8	At	W
18.6	9	7	7	8	8	8	At	W
19.6	8	13	6	6	6	5	At	W
Apr. 23.6	5	4	4	5	5	5	At	W
24.6	7	6	7	6	7	6	At	W
25.6	7	6	7	7	7	7	At	W
26.6	9	8	7	8	9	9	At	W
27.6	6	5	6	5	5	5	At	W
May 2.0	12	10	-	-	-	-	At	W
3.0	4	4	4	4	4	4	At	W
3.7	4	4	5	5	5	4	At	W
4.7	5	6	6	4	6	5	At	W
7.6	13	12	11	11	11	12	At	W
8.6	13	13	14	15	14	13	At	W
9.8	7	9	8	-	-	-	At	W
10.7	12	10	12	13	10	12	At	W
11.7	11	8	13	7	11	10	At	W
12.6	12	13	12	-	11	-	At	W
13.6	13	14	13	14	11	15	At	W
14.7	13	13	-	12	12	10	At	W
15.6	15	13	14	12	12	13	At	W
24.6	6	6	6	7	7	8	A	W
25.6	8	8	9	8	8	7	A	W
27.6	7	7	7	9	9	9	A	W
28.6	8	9	9	9	9	10	At	W
30.7	15	15	15	15	15	15	A	W
31.7	13	10	9	10	9	12	At	W
Jun. 4.9	-	4	-	-	-	-	A	W
5.7	5	6	7	5	7	5	A	W
6.7	7	6	5	6	4	5	At	W
7.6	9	10	9	10-	9	9	A	W
8.7	6	6	5	5	9	5	At	W
9.7	9	8	>15	7	7	6	A	W
10.7	12	13	11	14	13	15	A	W
11.6	13	15	11	9	10	11	A	W
12.7	9	10	10	8	10	7	A	W
13.7	10	11	11	13	13	13	A	W
14.6	11	10	11	10	10	10	A	W
15.7	15	15	15	15	15	15	A	W
16.7	-	9	14	13	11	10	A	W
17.6	7	6	5	9	8	14	A	W
18.6	12	12	14	14	13	15	At	W
19.6	11	11	11	10	11	11	A	W
20.6	15	>15	15	15	15	>15	At	W
21.6	13	13	13	12	13	12	A	W
22.6	-	15	-	-	-	-	At	W
23.6	15	13	14	-	-	-	At	W
24.6	>15	>15	-	-	-	-	At	W

A - Allen
At- Athay
W - I. Witte

Table 94

Particulars of Observations, Sacramento Peak, New Mexico

January-June 1952

Date GCT	Greenline threshold intensity at 0°	45°	90°	135°	180°	225°	270°	315°	Obs.	Meas.
1952										
Jan. 2.9	5	4	-	-	-	-	-	-	C	Y
4.7	5	4	5	5	5	6	6	6	S	Y
9.7	5	4	5	7	5	7	7	7	R	Y
14.8	10	10	10	14	-	-	-	-	S	Y
15.7	4	3	4	4	5	5	5	5	R	Y
21.7	4	4	4	4	5	4	5	6	S	Y
22.8	12	6	5	7	8	8	8	9	R	Y
24.7	4	4	4	4	4	4	4	6	S	Y
25.7	3	2	3	2	4	4	4	5	R	Y
27.7	4	4	4	4	4	4	5	5	S	Y
28.7	2	3	2	3	3	3	3	4	R	Y
30.9	3	3	9	5	-	-	-	-	R	Y
31.7	3	2	2	2	3	3	4	4	R	Y
Feb. 1.7	5	5	5	6	6	5	5	5	C	Y
2.7	5	5	4	4	5	5	5	6	S	Y
4.8	7	5	7	8	9	9	7	6	C	Y
5.7	6	6	5	5	7	6	6	7	S	Y
6.7	11	11	13	14	6	5	5	5	R	Y
7.8	5	5	4	3	4	5	6	7	C	Y
8.8	8	5	7	5	8	7	8	10	S	Y
12.8	7	8	8	8	11	-	-	-	R	Y
13.7	7	7	7	7	8	-	-	-	C	Y
16.7	8	6	6	7	6	6	7	8	C	Y
19.7	7	6	7	6	6	6	7	7	S	Y
24.8	8	7	5	5	6	5	7	9	S	Y
26.8	6	6	7	7	6	6	7	7	C/S	Y
29.8	8	7	7	7	7	8	8	8	C	Y
Mar. 5.8	7	8	8	7	8	8	8	8	R	Y
6.7	8	7	6	7	7	6	7	8	S	Y
7.8	8	8	6	7	8	8	9	9	R	Y
8.7	6	5	5	6	5	5	5	5	S	Y
10.9	9	8	8	8	8	8	8	9	R	Y
11.7	5	5	4	4	7	5	5	5	S	Y
12.9	5	5	5	6	7	5	6	8	C	Y
14.8	5	5	4	4	5	5	6	6	R	Y
18.8	11	7	7	7	8	11	8	8	R	Y
19.7	5	4	5	6	8	7	5	7	S	Y
20.7	4	2	3	2	3	3	5	5	C	Y
24.7	7	6	7	7	7	7	7	10	C	Y
26.7	5	4	5	5	5	8	5	4	S	Y
28.7	3	2	3	3	3	5	5	5	R	Y
30.7	5	4	4	4	4	4	4	5	R	Y
31.9	7	4	4	6	9	9	10	9	S	Y
Apr. 1.8	8	7	7	7	8	7	7	7	R	Y
2.8	7	6	6	5	6	7	6	6	W	Y
1952										
Apr. 3.7	6	5	6	6	5	5	6	7	W	Y
7.7	11	9	10	11	9	9	10	10	W	Y
9.7	5	4	4	4	5	5	>15	>15	R	Y
13.9	12	10	9	9	8	8	9	9	C	Y
14.7	4	4	4	5	5	5	5	4	R	Y
15.8	7	5	5	5	7	5	6	8	Y	Y
18.8	4	3	3	3	4	3	3	3	R	Y
26.9	10	10	8	9	8	8	9	12	S	Y
29.7	5	5	4	5	4	5	5	5	S	Y
30.9	11	11	13	15	13	14	14	14	S	Y
May 1.8	10	7	7	8	8	8	9	8	S	Y
3.7	13	12	12	12	>15	13	13	12	S	Y
4.8	13	12	13	13	15	14	14	13	W	Y
7.6	7	6	6	8	10	7	7	6	C	Y
9.7	10	11	11	11	13	13	14	12	S	Y
10.7	9	9	8	9	9	8	8	8	R	Y
11.7	12	11	11	11	11	9	10	10	R	Y
14.7	10	8	10	9	10	8	8	7	R	Y
15.7	15	15	14	13	15	15	-	-	W	Y
20.0	15	14	14	15	14	13	12	12	S	Y
23.8	14	13	13	13	14	14	13	12	R	Y
24.8	13	12	12	12	12	12	12	11	Y	Y
29.8	11	9	13	13	13	13	13	12	C	Y
Jun. 3.7	5	5	5	5	4	5	7	7	C	Y
4.6	4	5	4	5	4	4	5	6	C	Y
6.8	8	10	8	8	8	8	10	8	R	Y
7.6	7	7	6	7	7	7	7	6	R	Y
8.6	8	7	6	7	7	6	7	7	W	Y
9.7	12	15	-	-	-	-	-	-	R	Y
10.7	11	10	10	10	8	9	10	11	S	Y
13.6	11	9	8	9	9	11	11	11	R	Y
14.7	9	9	7	7	11	10	10	10	W	Y
16.7	11	13	9	9	9	-	-	-	S	Y
18.7	14	13	12	13	12	11	10	10	W/R	Y
19.8	14	12	12	11	13	11	12	12	R	Y
20.9	12	13	13	13	13	11	12	14	S	Y
21.7	10	9	8	8	14	13	12	13	R/W	Y
22.7	11	10	9	9	11	10	10	9	W	Y
23.6	13	10	9	10	11	10	10	10	Y	Y
24.6	13	12	12	11	14	12	12	11	R	Y
25.7	11	11	9	10	10	10	11	10	R	Y
26.7	11	11	11	11	12	12	12	12	W	Y
27.9	>15	>15	>15	>15	>15	>15	-	-	R	Y
30.6	11	9	8	7	9	8	8	9	S	Y

C - Crawford
R - Ramsey
S - Schnable
W - Warwick
Y - Yü

Table 95

Zürich Provisional Relative Sunspot Numbers

June 1952

Date	R_Z*	Date	R_Z*
1	12	17	45
2	19	18	45
3	14	19	55
4	7	20	50
5	7	21	50
6	6	22	55
7	26	23	70
8	21	24	58
9	8	25	56
10	17	26	56
11	10	27	52
12	18	28	66
13	20	29	63
14	22	30	76
15	46		
16	36	Mean:	36.2

* Dependent on observations at Zürich Observatory and its stations at Locarno and Arosa.

Table 96

American Relative Sunspot Numbers

May 1952

Date	R_A,*	Date	R_A,*
1	28	17	15
2	19	18	24
3	13	19	25
4	30	20	28
5	30	21	31
6	38	22	33
7	27	23	32
8	14	24	26
9	9	25	16
10	0	26	17
11	4	27	54
12	2	28	50
13	9	29	40
14	7	30	27
15	12	31	16
16	13	Mean:	22.2

*Combination of reports from 28 observers; see page 10.

Table 97

Solar Flares, May 1952

Observatory	Date 1952	Time Observed Beginning (GCT)	Time Observed Ending (GCT)	Duration (Min)	Area (Mill) (of) (Visible) (Hemisph)	Position Latitude (Deg)	Position Longitude Diff (Deg)	Time of Maximum (GCT)	Int. of Maximum	Relative Area of Maximum (Tenths)	Importance	SID Observed
McMath	May 5	1610				S11	W33				1 -	
"	21	1258				S08	W07				2 +	
"	27	1505				S19	W37				1 -	
Boulder	27	1625				S16	W38				1 -	
McMath	27	1701				S19	W37				1 -	
Boulder	27	1720			70	S16	W38		20		1	
"	27	1855			200	S16	W38		15		1	
"	27	2110			150	S19	W37		15		1	
McMath	28	1345				S18	W52				1 -	

B Flare started before given time
A Flare ended after given time
Q Time reported as questionable

Table 98

Indices of Geomagnetic Activity for May 1952

Preliminary values of international character-figures, C;
Geomagnetic planetary three-hour-range indices, Kp;
Magnetically selected quiet and disturbed days

Gr. Day 1952	C	Values Kp three-hour interval 1	2	3	4	5	6	7	8	Sum	Final Selected Days
1	1.5	6+	5+	5+	6-	5-	4+	5+	6-	43-	Five
2	1.4	6+	6-	5-	5o	5o	5-	5+	6o	43-	Quiet
3	1.5	5+	5+	4+	3+	4o	4+	6+	7o	40o	
4	1.4	7-	5o	4o	4-	4o	5-	5o	5+	38+	9
5	1.2	5+	4o	4o	4o	4-	3+	3o	5-	32o	10
											15
6	1.0	4-	4+	5+	4+	3o	4-	3-	3+	30+	16
7	1.6	4o	4+	6-	6-	7-	6o	6o	7o	45+	22
8	1.1	6-	5-	5-	4-	4-	4-	3+	2+	32-	
9	0.0	2-	1o	1-	0o	0+	0+	0+	2o	6+	
10	0.2	3o	2o	1o	2-	2+	0+	1-	0+	11+	
11	0.8	0o	1+	1+	2o	4-	4+	4-	2o	18+	Five
12	0.5	4o	3+	3o	2o	2-	1+	3-	2o	20o	Disturbed
13	0.6	1+	1+	1+	2+	4+	2-	3+	4-	19+	
14	0.4	4o	3+	3-	1o	1-	1o	1o	1-	14+	1
15	0.3	1+	0+	0+	1o	2-	3-	2-	1+	10+	2
											3
16	0.1	1o	1-	1-	1o	1-	2-	0+	1o	7o	7
17	0.4	0+	1o	1o	1-	1+	2-	2+	3o	11+	27
18	1.4	5o	3o	4+	5o	4o	6o	4o	3o	34+	
19	1.3	4o	6-	5-	6-	3+	4-	3o	3-	33-	
20	0.9	3o	4-	3+	3+	4o	4-	2o	4-	27-	
21	0.6	3-	3-	3+	4o	3+	3-	2o	2-	22+	Ten
22	0.0	1o	2-	1+	2-	1+	1-	1-	0+	9-	Quiet
23	0.4	1-	1-	1o	2-	2+	3-	3-	2o	14-	
24	0.8	3+	2+	3-	2+	3o	3o	2+	3+	22+	9
25	0.8	5-	3+	4o	3o	2+	3o	1+	1-	22+	10
											12
26	1.5	0+	1-	4-	6o	4o	5o	5+	8-	33-	13
27	1.6	8o	6-	5-	5+	4+	5+	6-	5o	44o	14
28	1.3	5-	3o	3o	4+	5-	6-	5o	5o	35+	15
29	1.3	5-	5+	4+	5+	4-	5o	4o	4o	36+	16
30	1.0	4o	5-	4-	3o	3o	2+	4-	3+	28-	17
31	1.0	5-	5-	4o	2+	2+	2o	3+	4+	28-	22
											23
Mean	0.93										

Table 99

Sudden Ionosphere Disturbances Observed at Washington, D. C.

June 1952

1952 Day	GCT		Location of transmitters	Relative intensity at minimum*	Other phenomena
	Beginning	End			
June 23	1959	2050	Ohio, D. C., Colombia, England, Mexico, North Dakota	0.01	Solar flare** 2000

*Ratio of received field intensity during SID to average field intensity before and after, for station KQ2XAU (formerly W8XAL), 6080 kilocycles, 600 kilometers distant.

**Time of observation at McMath-Hulbert Observatory, Pontiac, Michigan.

Table 100

Sudden Ionosphere Disturbances Reported by RCA Communications, Inc.,

as Observed at Point Reyes, California

1952 Day	GCT		Location of transmitters	Other phenomena
	Beginning	End		
June 23	1958	2050	Australia, Hawaii, Japan, Philippine Is.	Solar flare* 2000
July 2	2130	2230	Australia, China, Guam, Hawaii, Japan, New York, Philippine Is.	

*Time of observation at McMath-Hulbert Observatory, Pontiac, Michigan.

Note: Observers are invited to send to the CRPL information on times of beginning and end of sudden ionosphere disturbances for publication as above. Address letters to the Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

GRAPHS OF IONOSPHERIC DATA

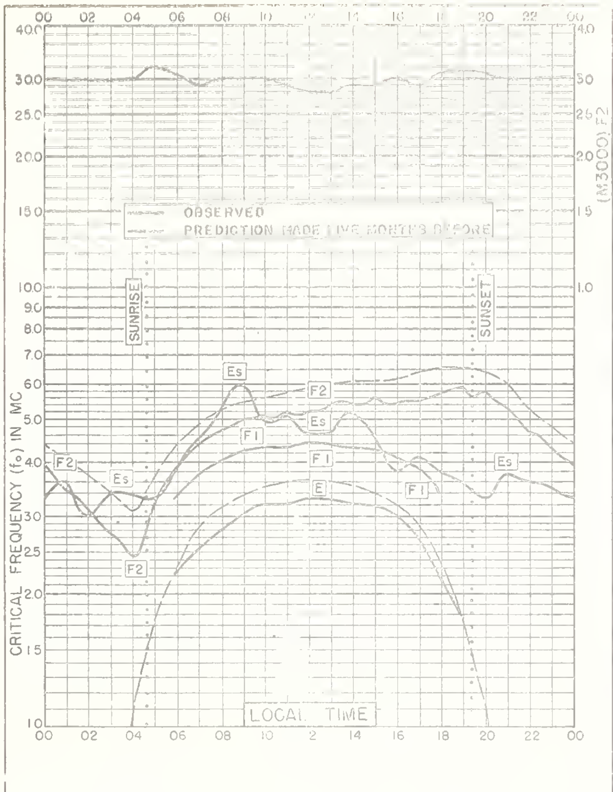


Fig. 1. WASHINGTON, D. C.
38.7°N, 77.1°W JUNE 1952

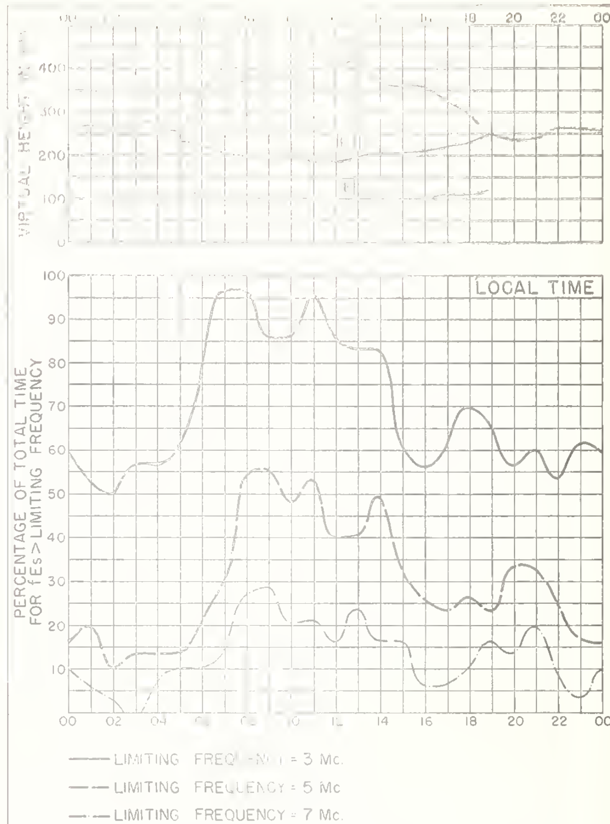


Fig. 2. WASHINGTON, D. C. JUNE 1952

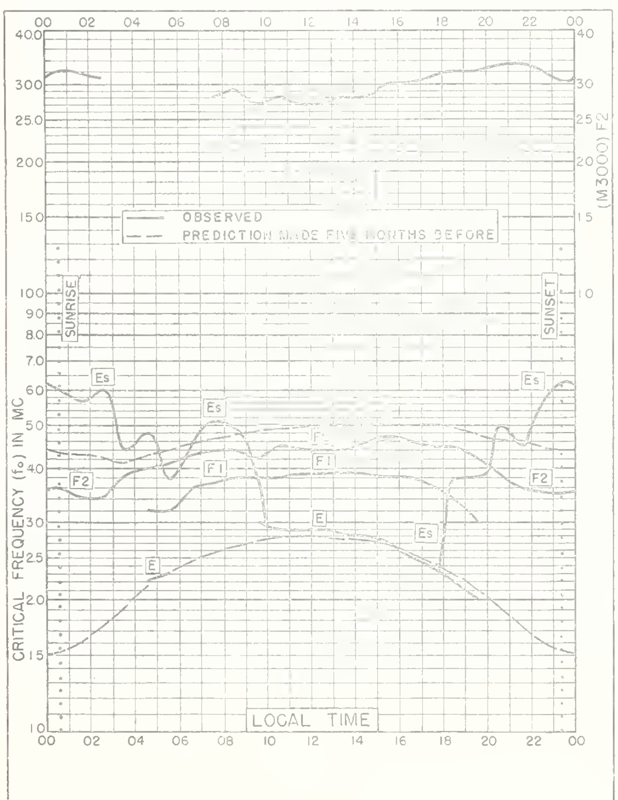


Fig. 3 POINT BARROW, ALASKA
71.3°N, 156.8°W MAY 1952

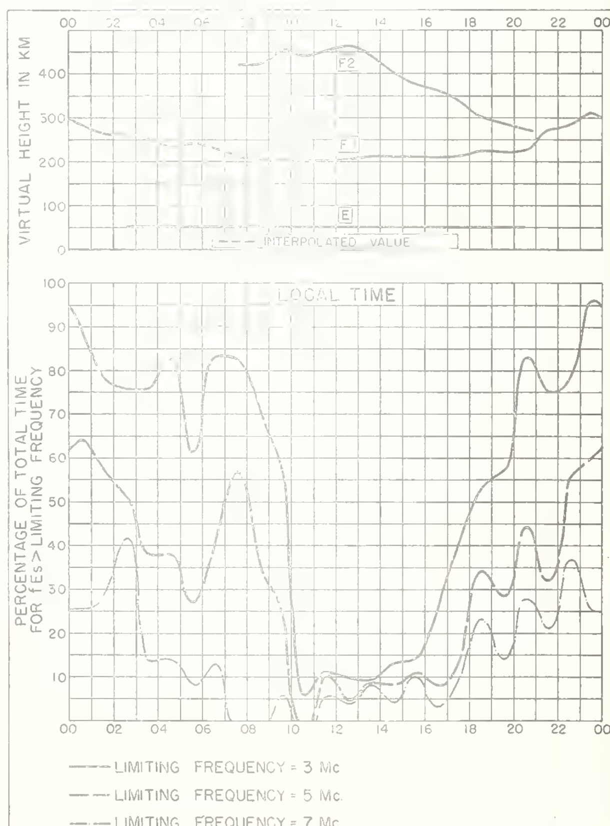


Fig. 4. POINT BARROW, ALASKA MAY 1952

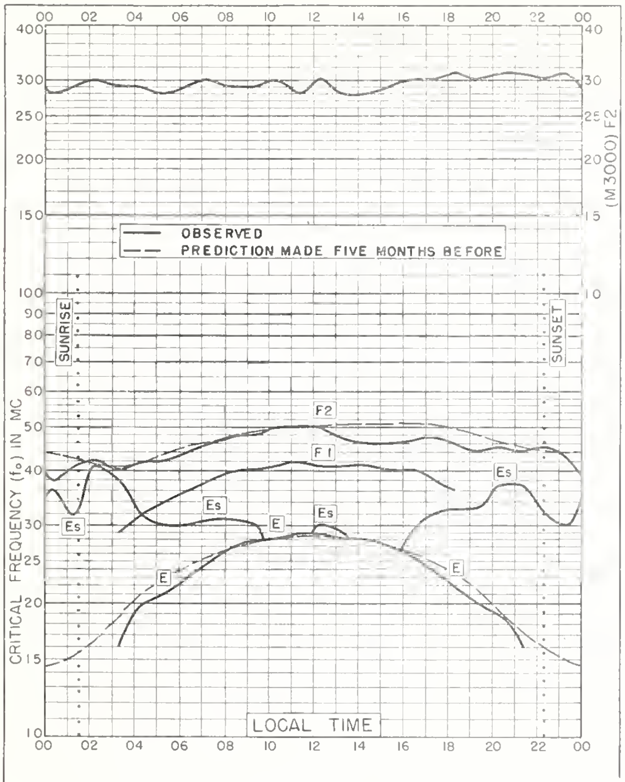


Fig. 5 TROMSO, NORWAY
69.7°N, 19.0°E MAY 1952

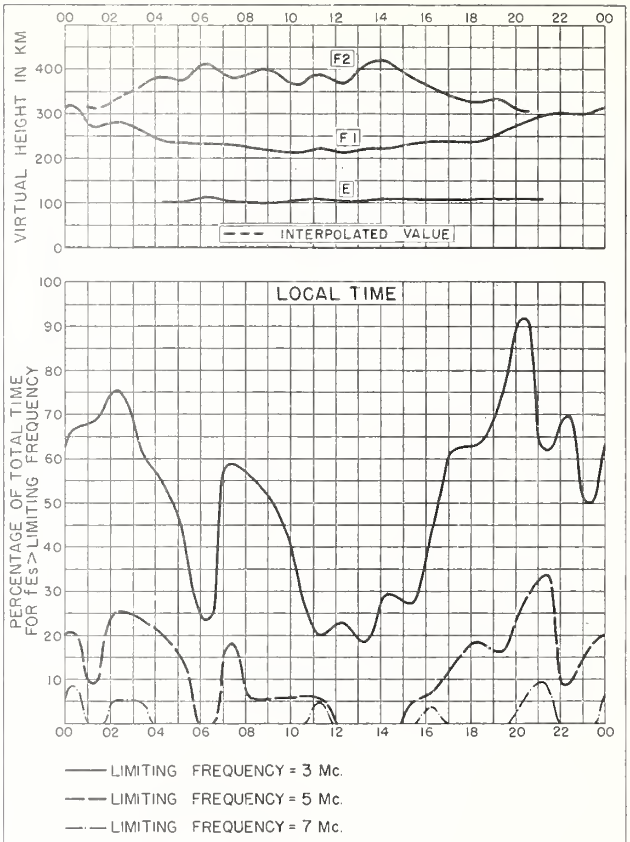


Fig. 6 TROMSO, NORWAY MAY 1952

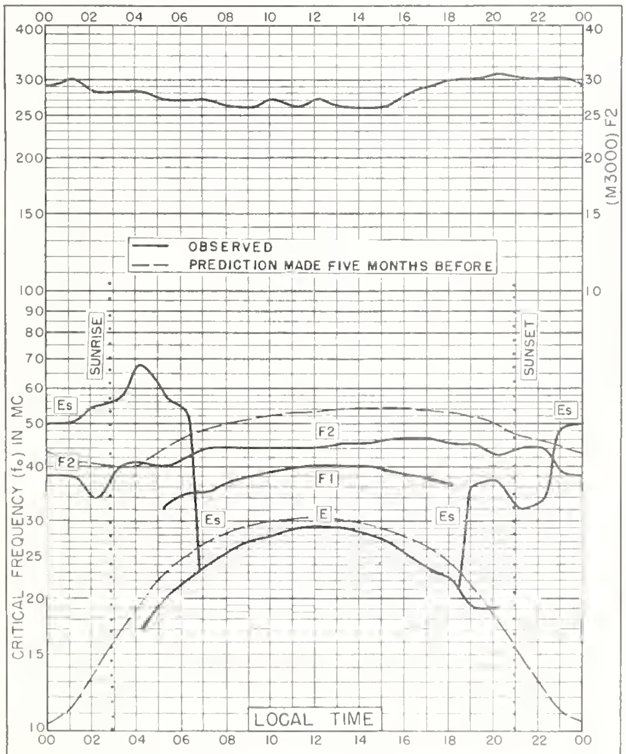


Fig 7 FAIRBANKS, ALASKA
64.9°N, 147.8°W MAY 1952

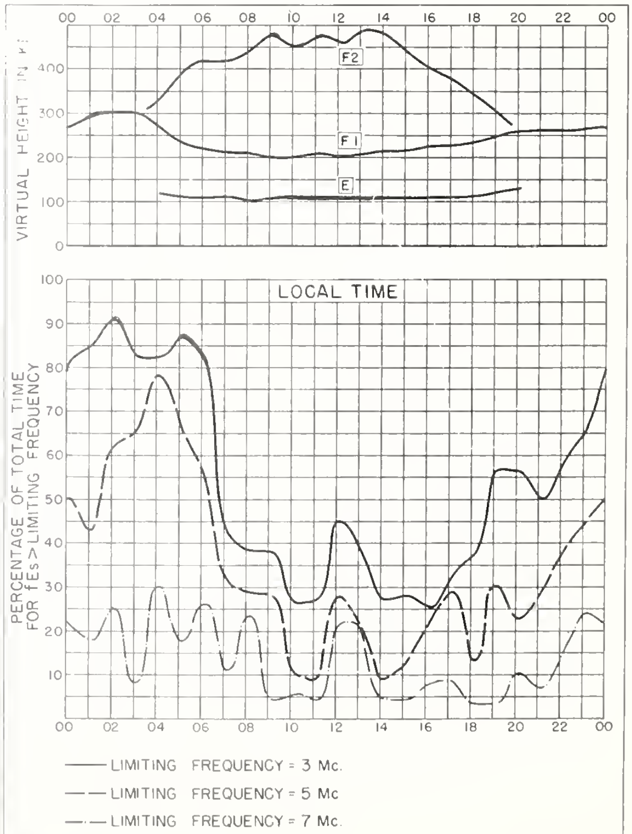


Fig 8. FAIRBANKS, ALASKA MAY 1952

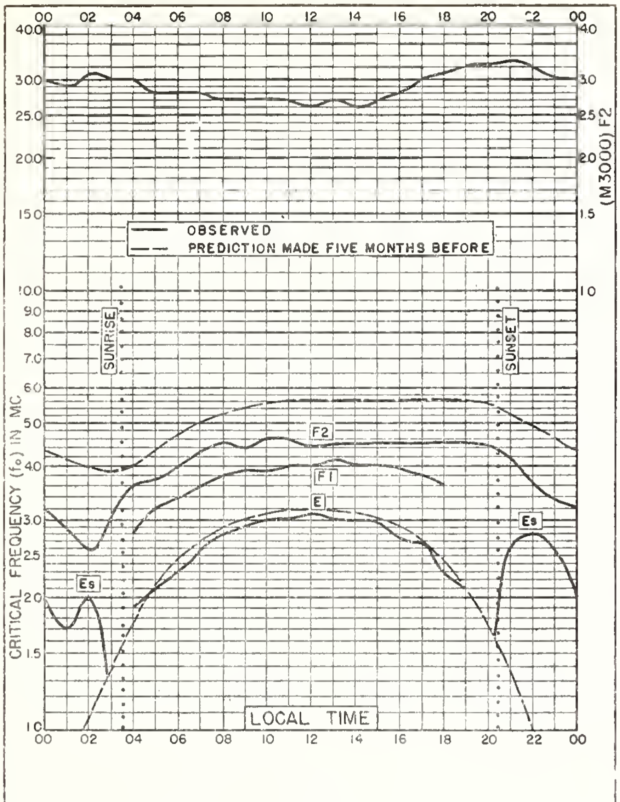


Fig. 9. ANCHORAGE, ALASKA
61.2°N, 149.9°W MAY 1952

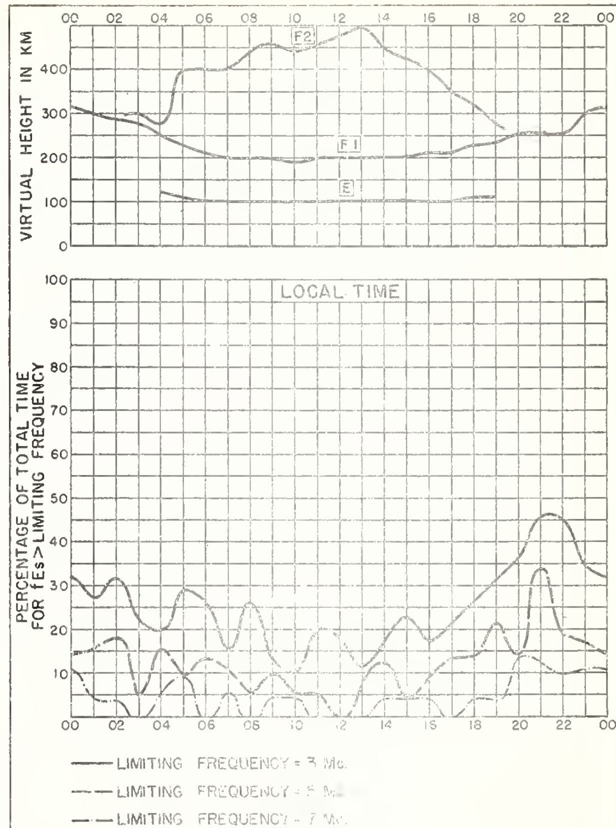


Fig. 10. ANCHORAGE, ALASKA MAY 1952

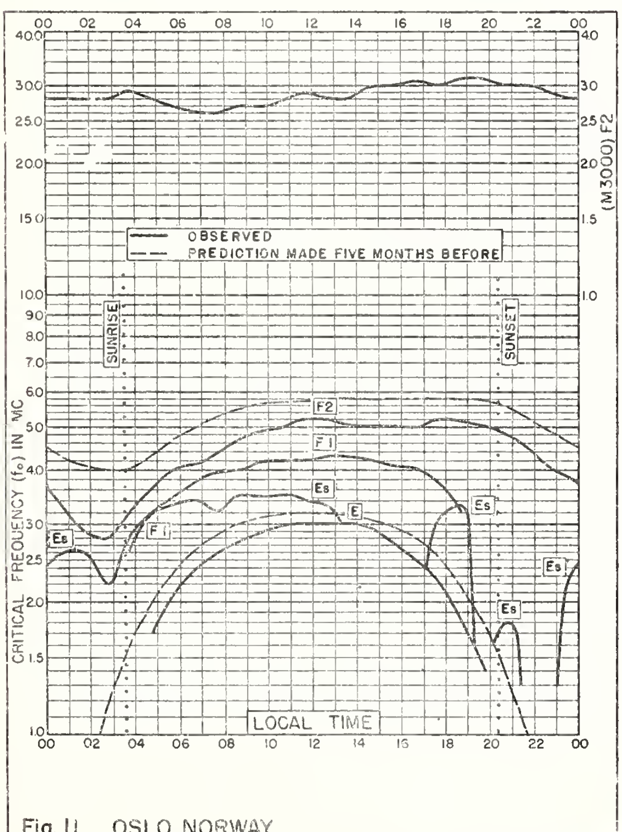


Fig. 11. OSLO, NORWAY
60.0°N, 11.1°E MAY 1952

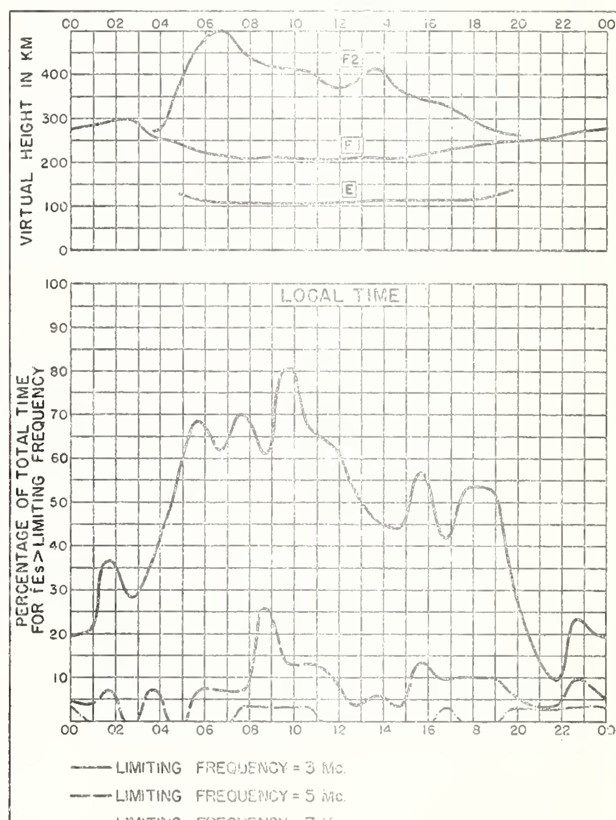


Fig. 12. OSLO, NORWAY MAY 1952

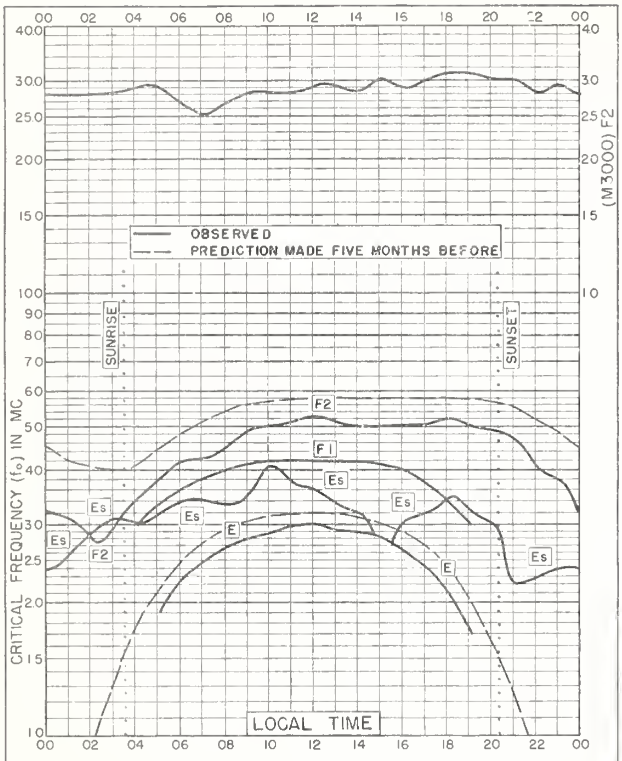


Fig. 13. UPSALA, SWEDEN
59.8°N, 17.6°E MAY 1952

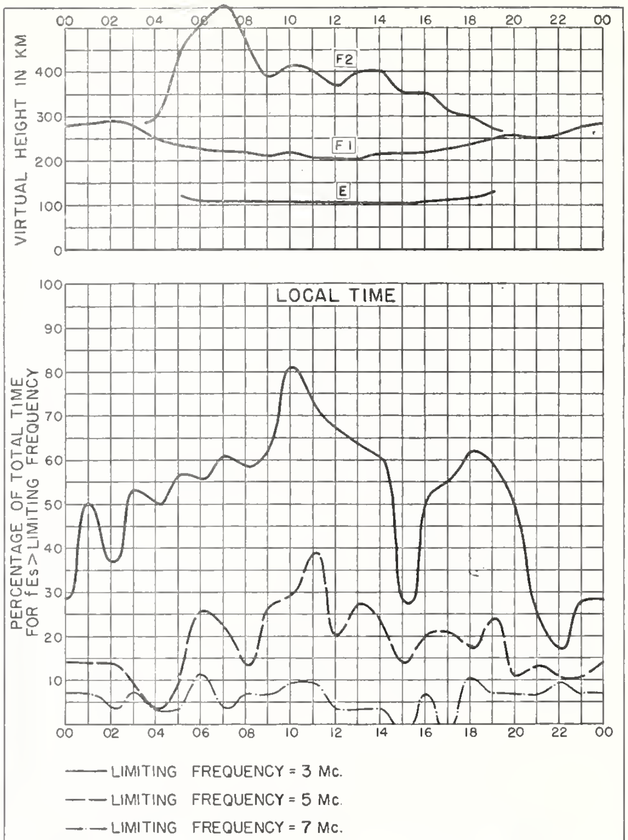


Fig. 14. UPSALA, SWEDEN MAY 1952

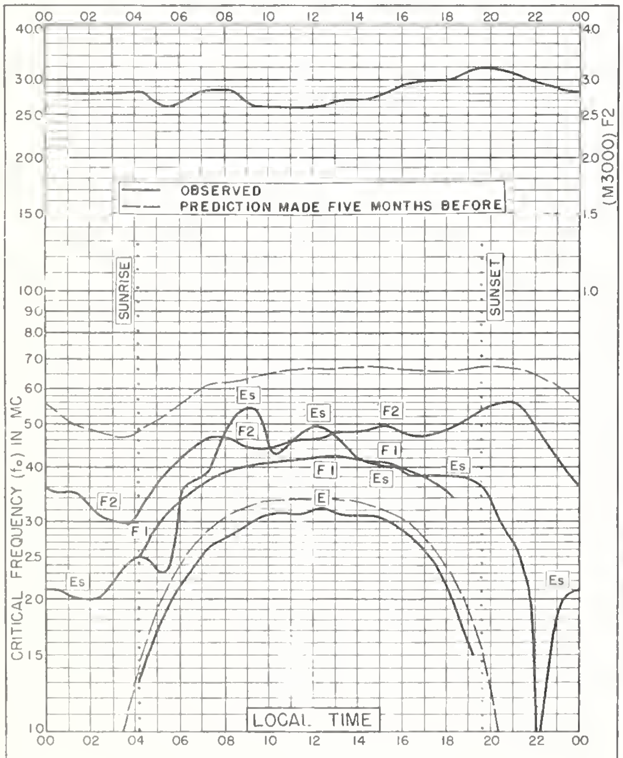


Fig. 15. ADAK, ALASKA
51.9°N, 176.6°W MAY 1952

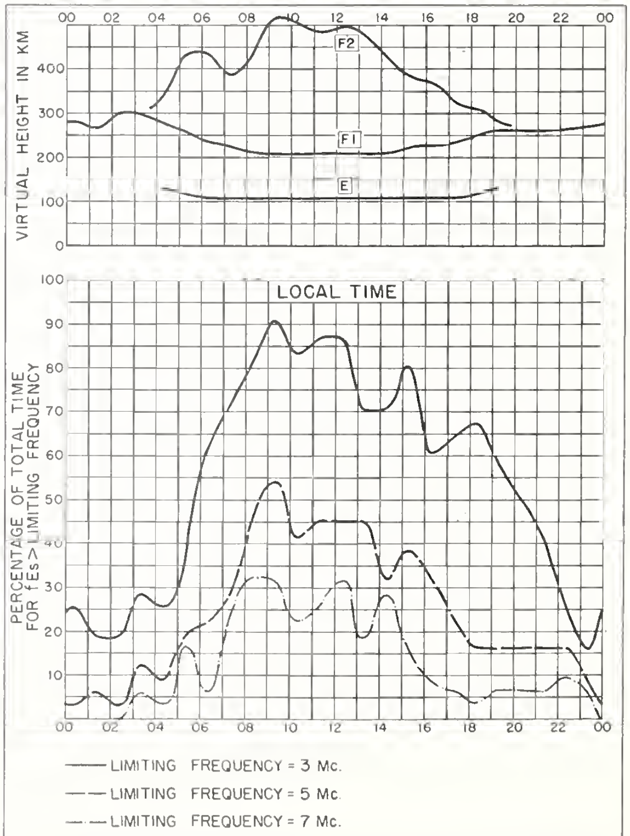


Fig. 16. ADAK, ALASKA MAY 1952

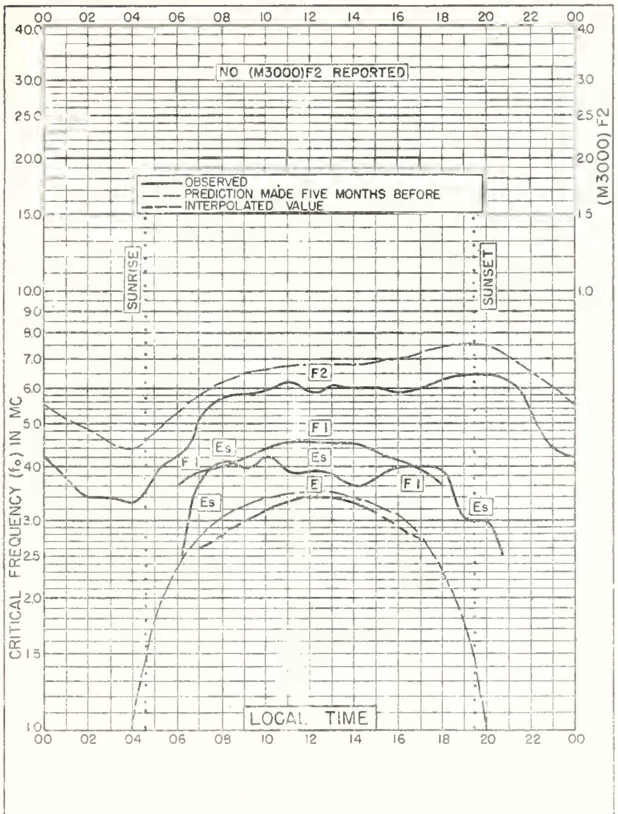


Fig. 17 GRAZ, AUSTRIA
47.1°N, 15.5°E MAY 1952

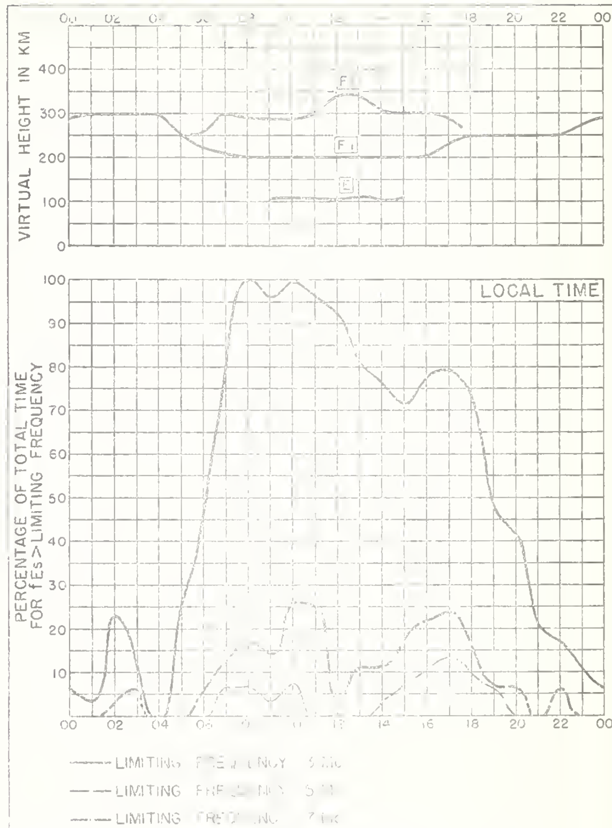


Fig. 18 GRAZ, AUSTRIA MAY 1952

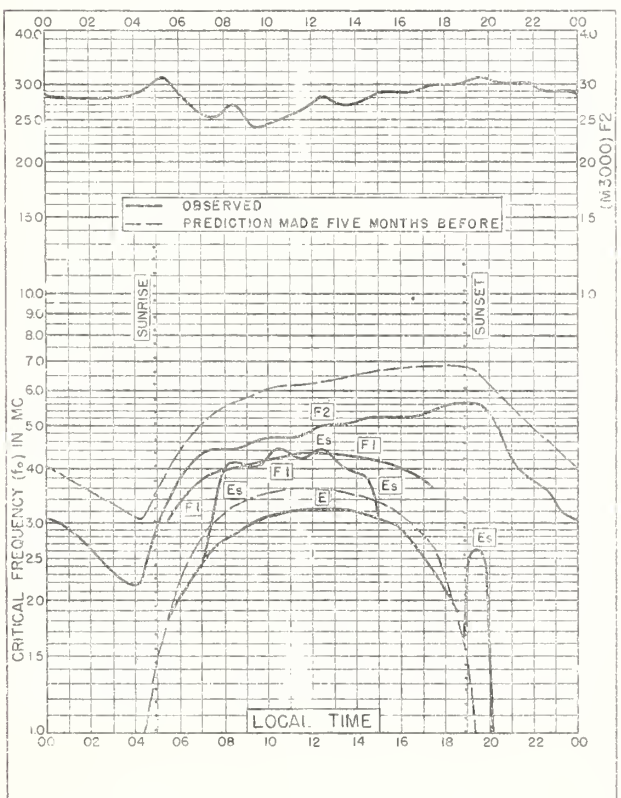


Fig. 19 BATAVIA, OHIO
39.1°N, 84.1°W MAY 1952

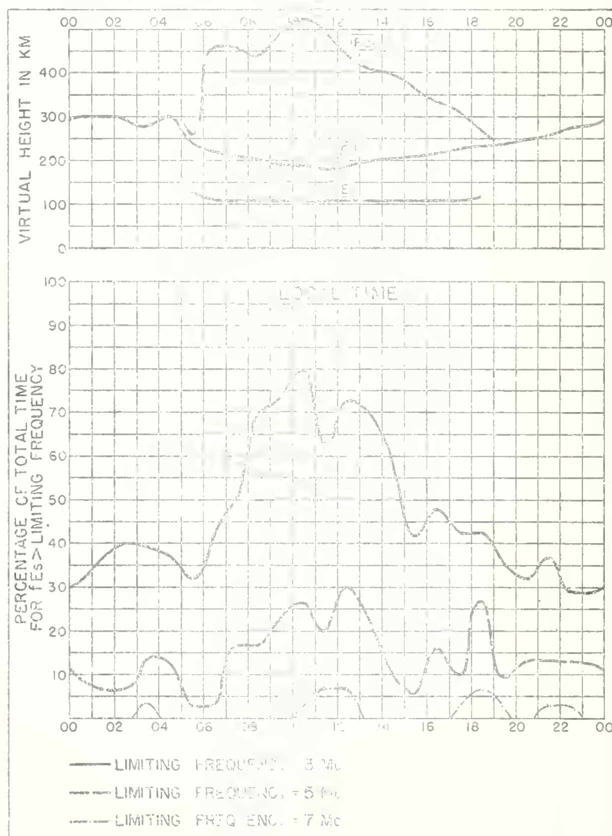


Fig. 20 BATAVIA, OHIO MAY 1952

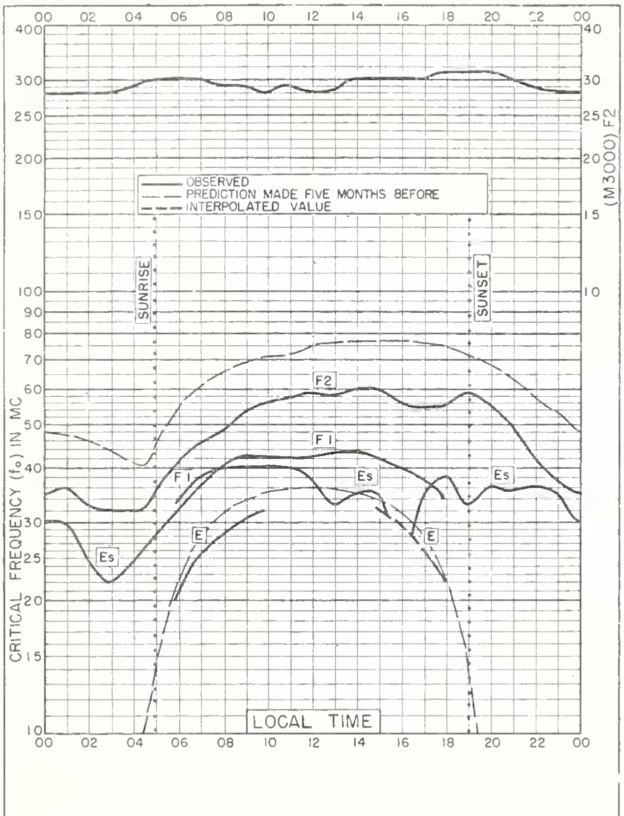


Fig.21. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W MAY 1952

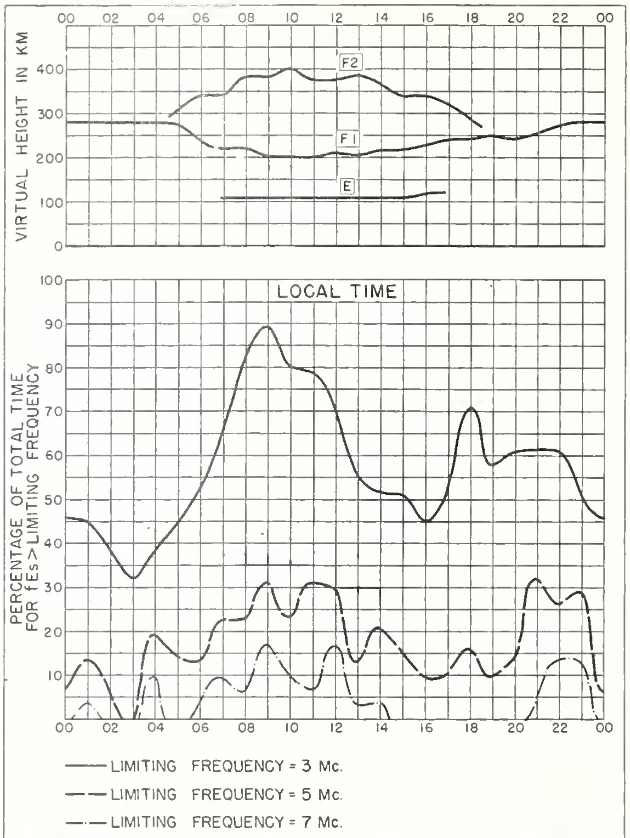


Fig.22. SAN FRANCISCO, CALIFORNIA MAY 1952

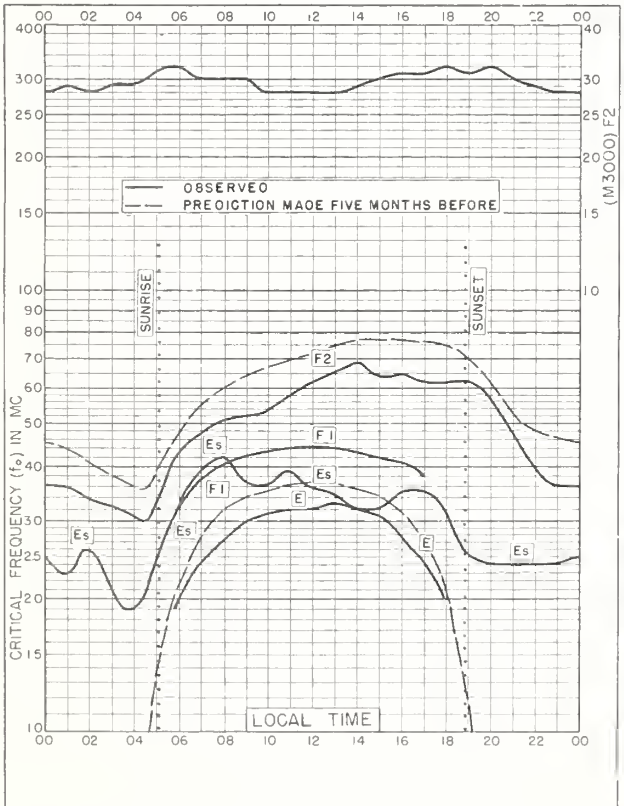


Fig.23. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W MAY 1952

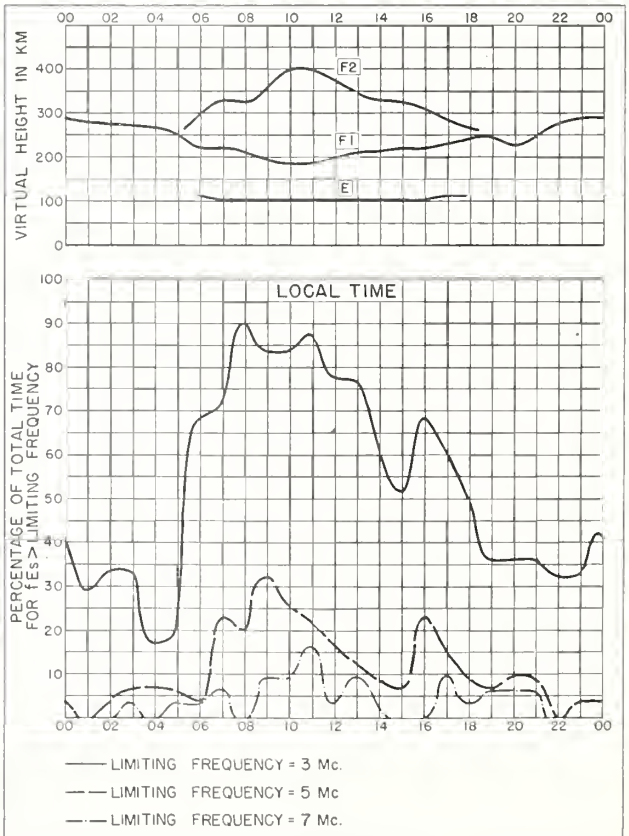


Fig.24. WHITE SANDS, NEW MEXICO MAY 1952

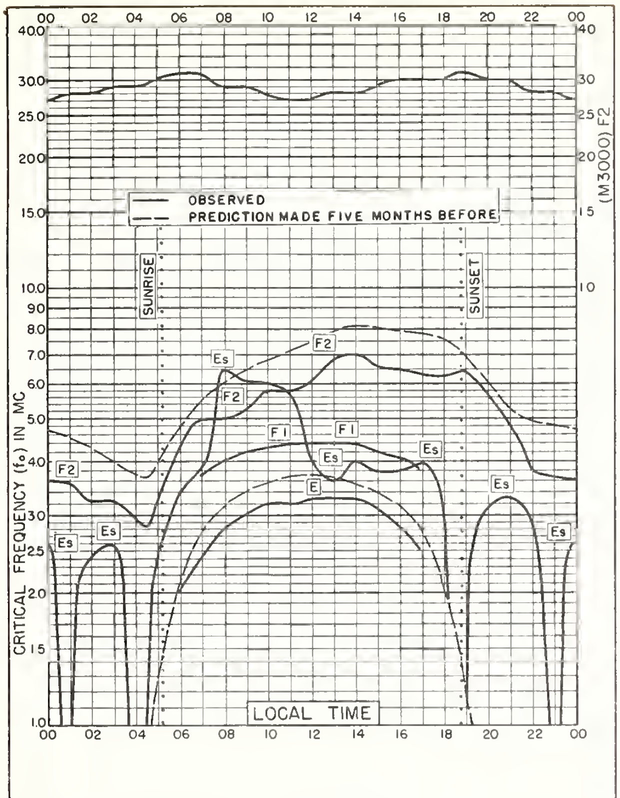


Fig. 25. BATON ROUGE, LOUISIANA
30.5° N, 91.2° W MAY 1952

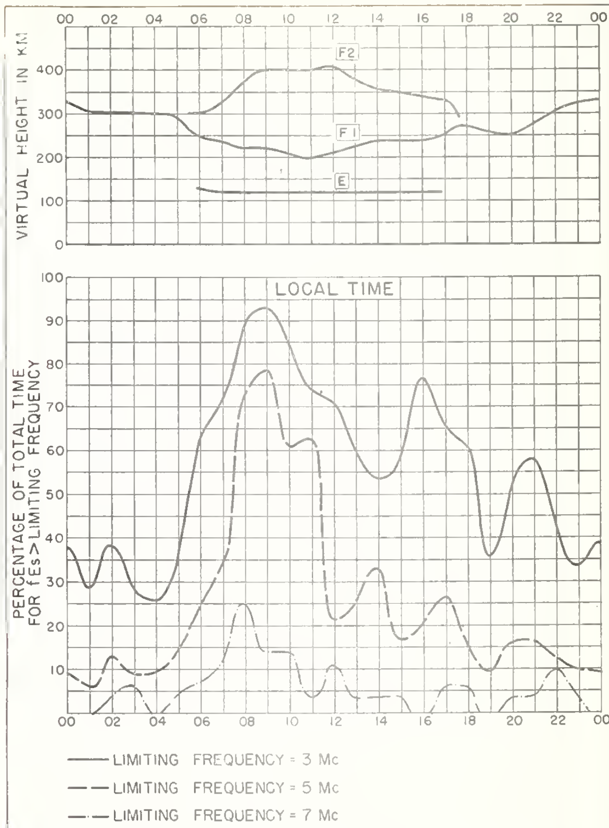


Fig. 26. BATON ROUGE, LOUISIANA MAY 1952

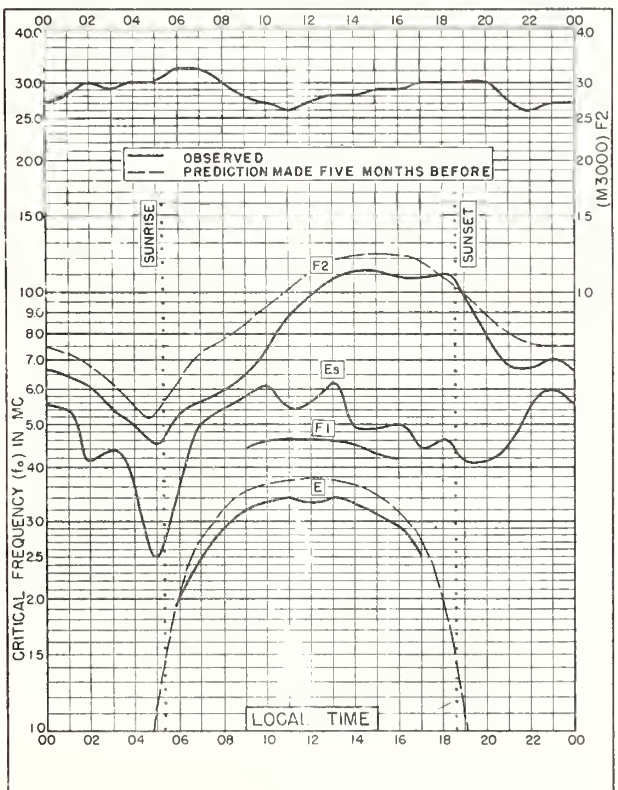


Fig. 27 OKINAWA I.
26.3°N, 127.8°E MAY 1952

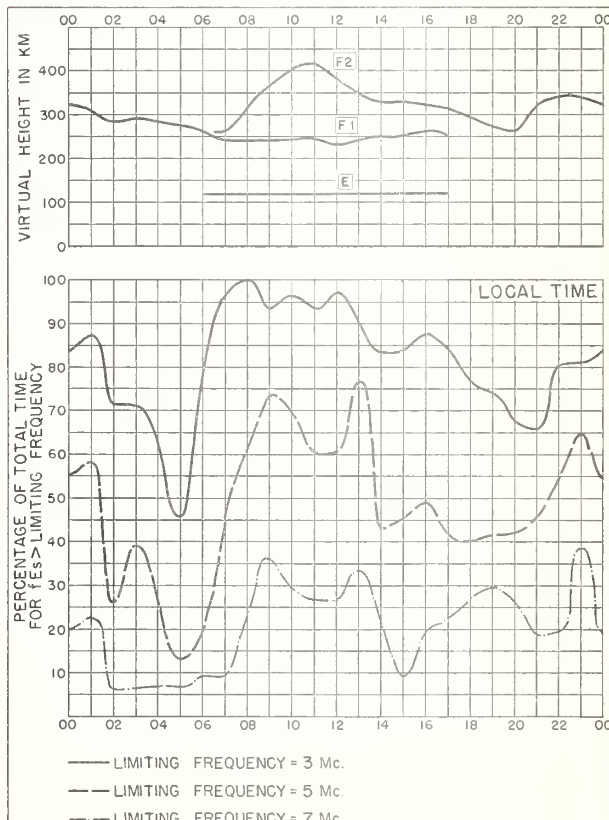


Fig. 28. OKINAWA I. MAY 1952

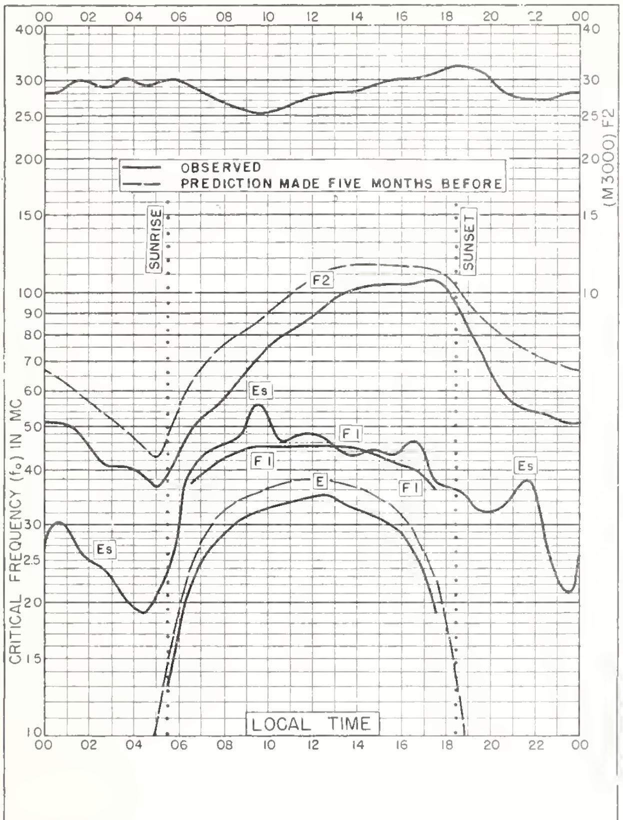


Fig. 29. MAUI, HAWAII
20.8°N, 156.5° W MAY 1952

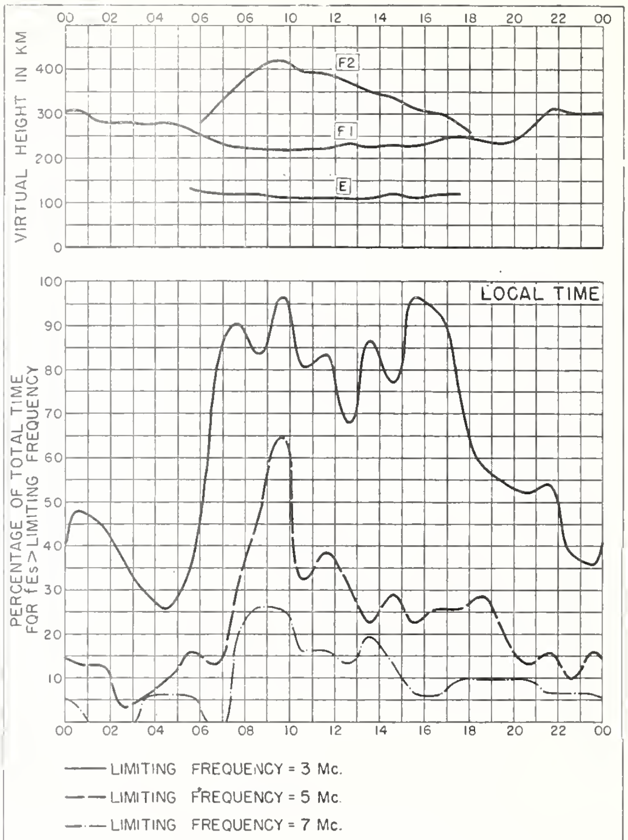


Fig. 30. MAUI, HAWAII MAY 1952

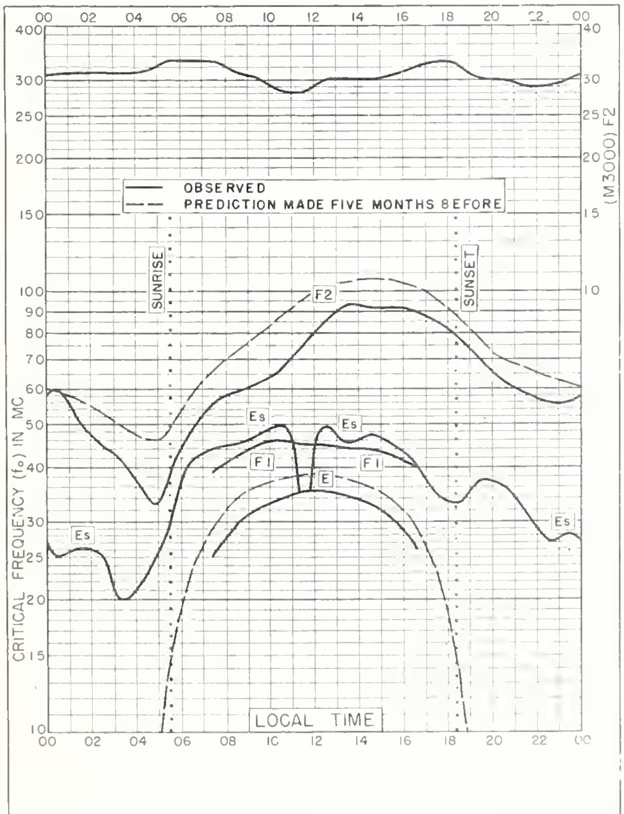


Fig. 31. PUERTO RICO, W.I
18.5°N, 67.2°W MAY 1952

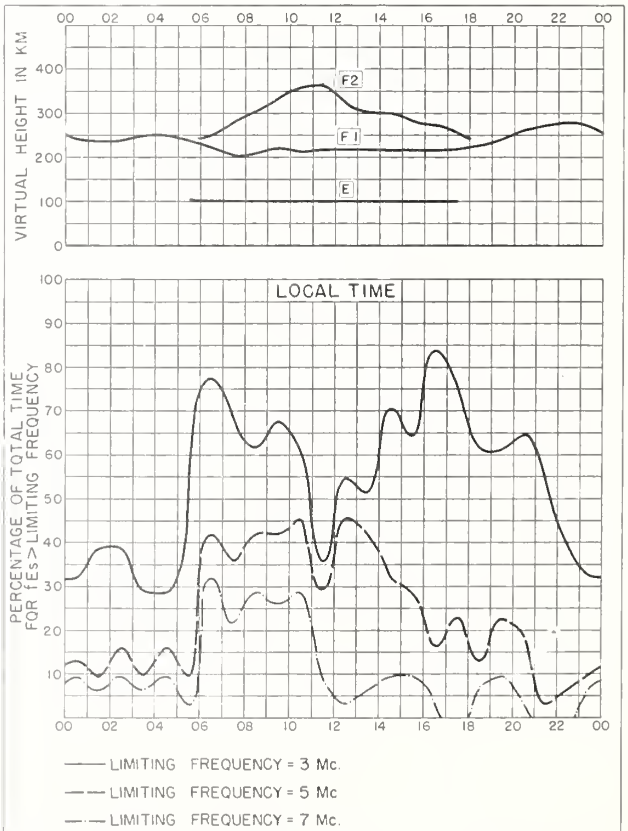


Fig. 32. PUERTO RICO, W I MAY 1952

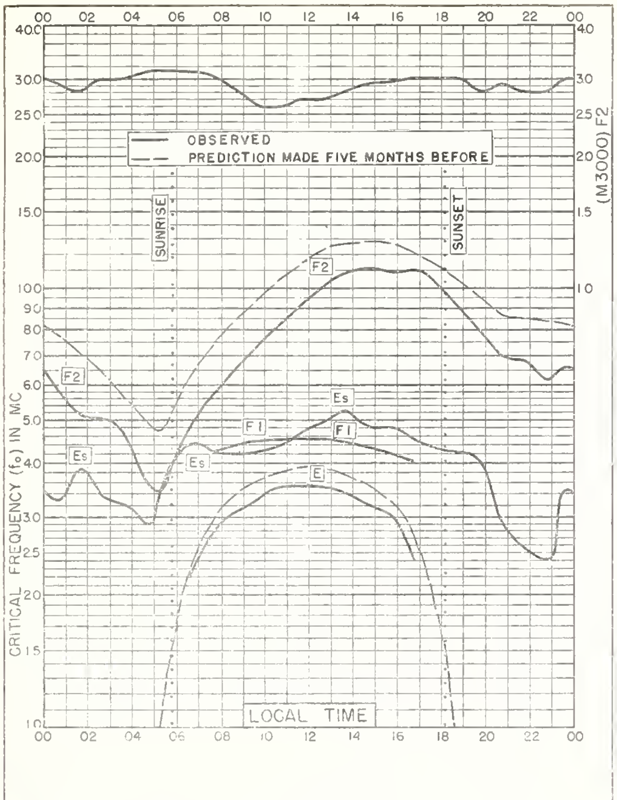


Fig. 33. PANAMA CANAL ZONE
9.4° N, 79.9° W MAY 1952

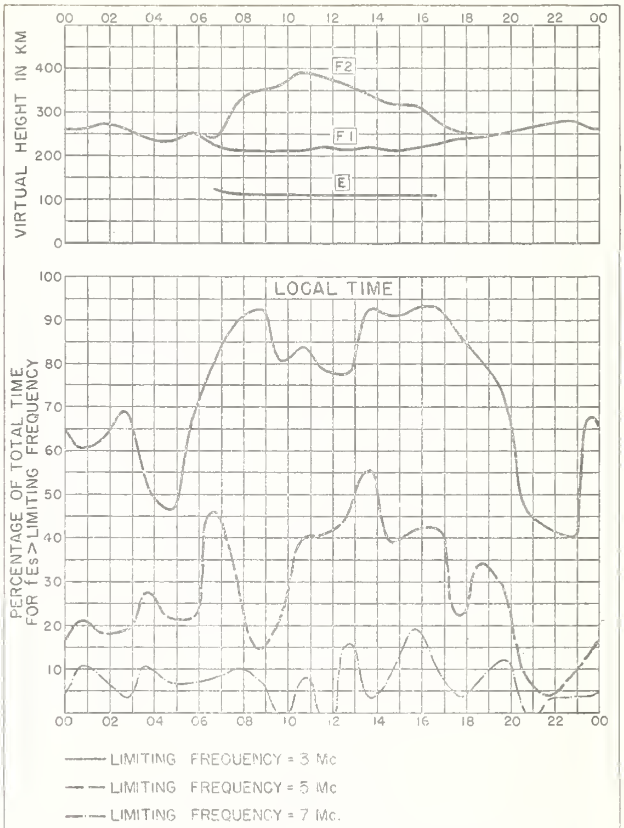


Fig. 34. PANAMA CANAL ZONE MAY 1952

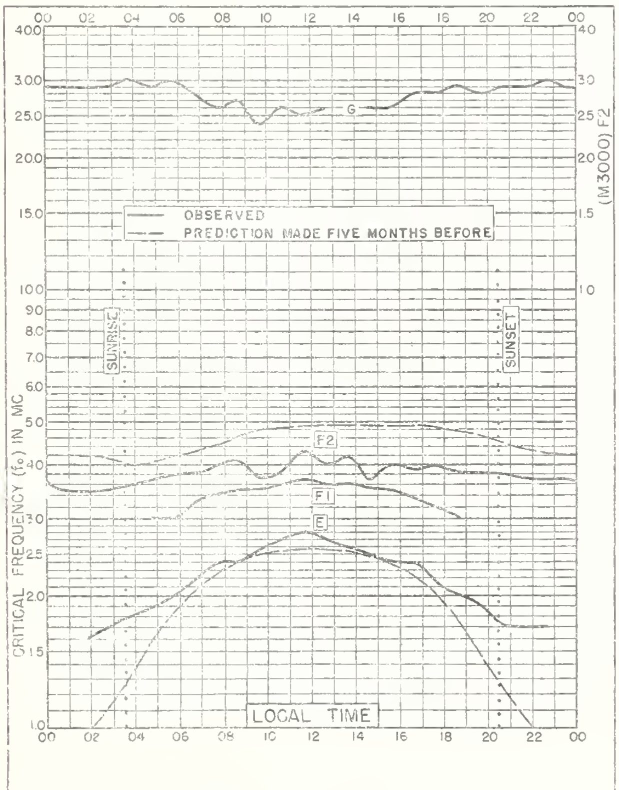


Fig. 35. RESOLUTE BAY, CANADA
74.7° N, 94.9° W APRIL 1952

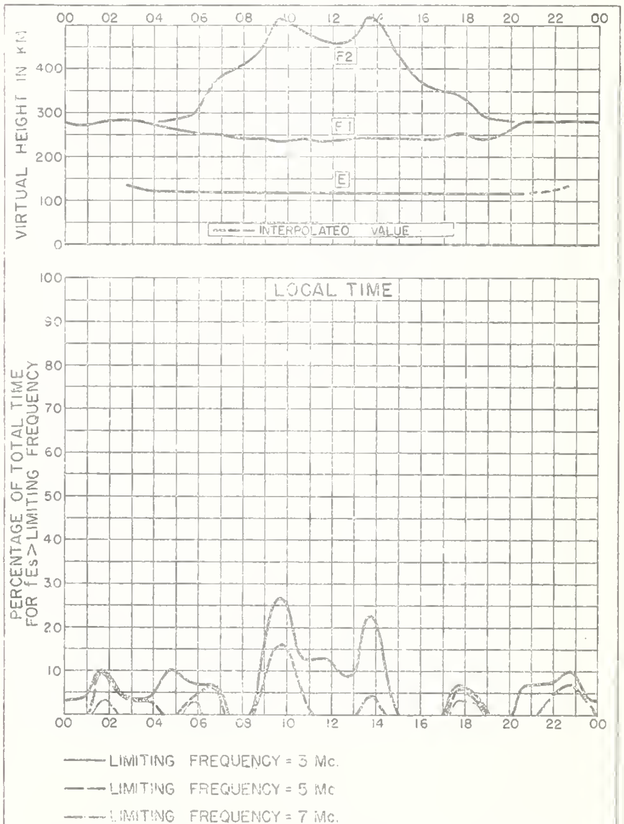


Fig. 36. RESOLUTE BAY, CANADA APRIL 1952

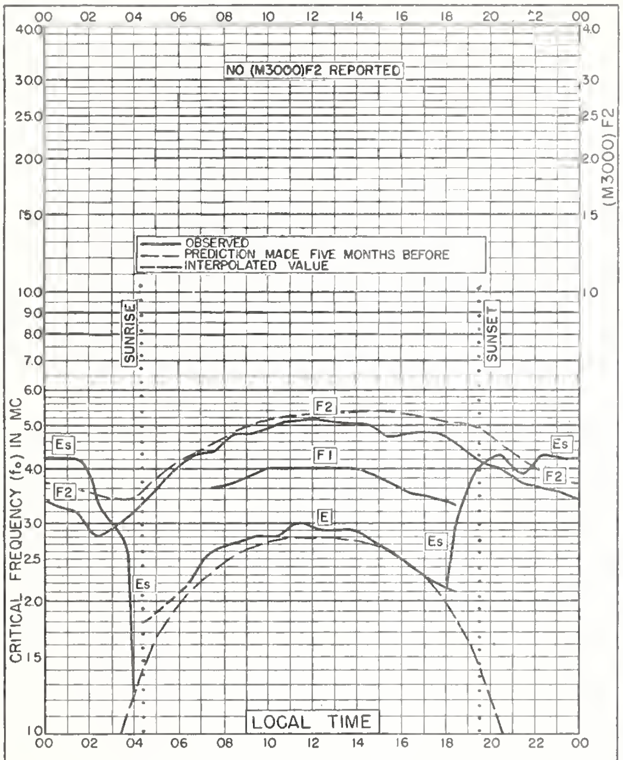


Fig. 37 KIRUNA, SWEDEN
67.8°N, 20.5°E APRIL 1952

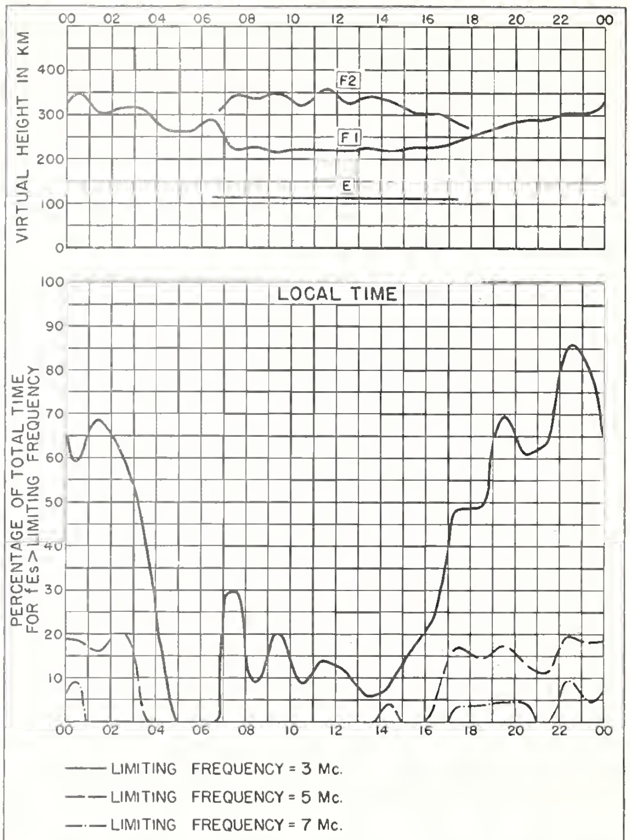


Fig. 38 KIRUNA, SWEDEN APRIL 1952

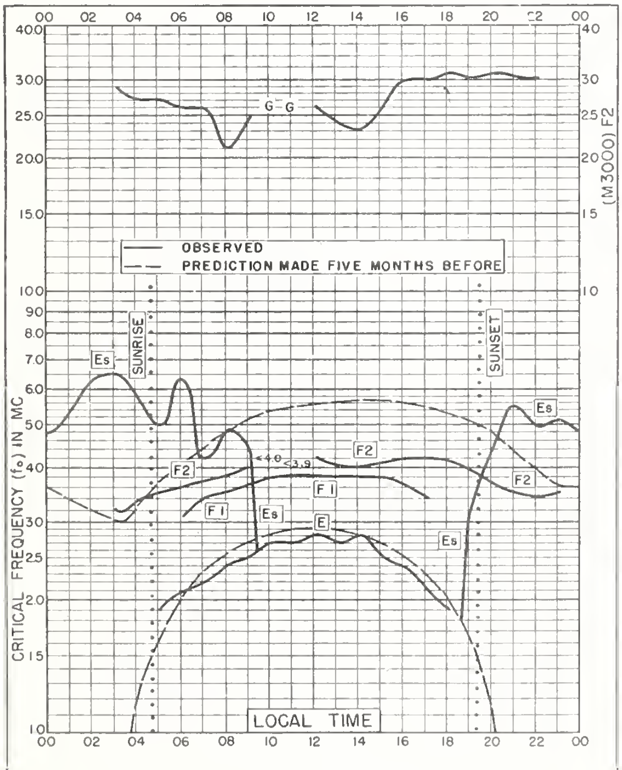


Fig. 39. FAIRBANKS, ALASKA
64.9°N, 147.8°W APRIL 1952

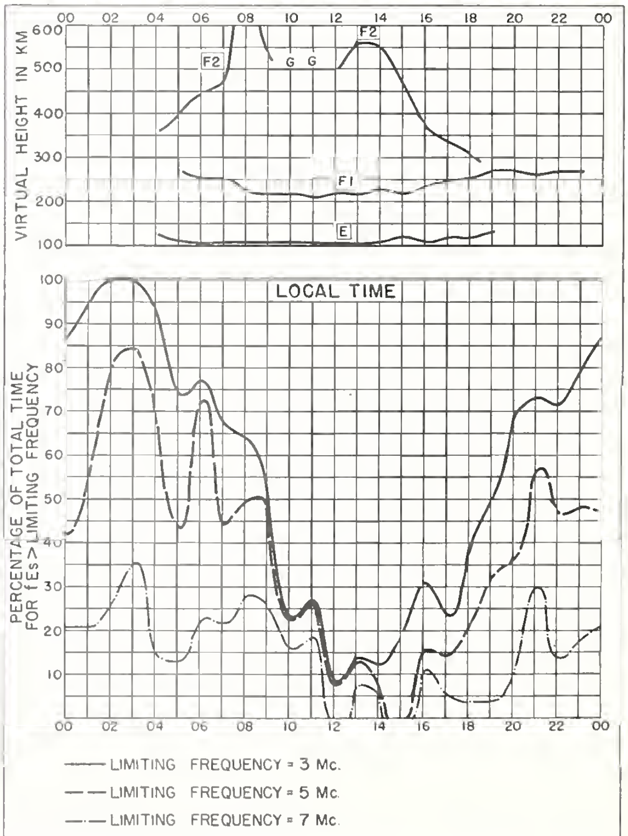


Fig. 40. FAIRBANKS, ALASKA APRIL 1952

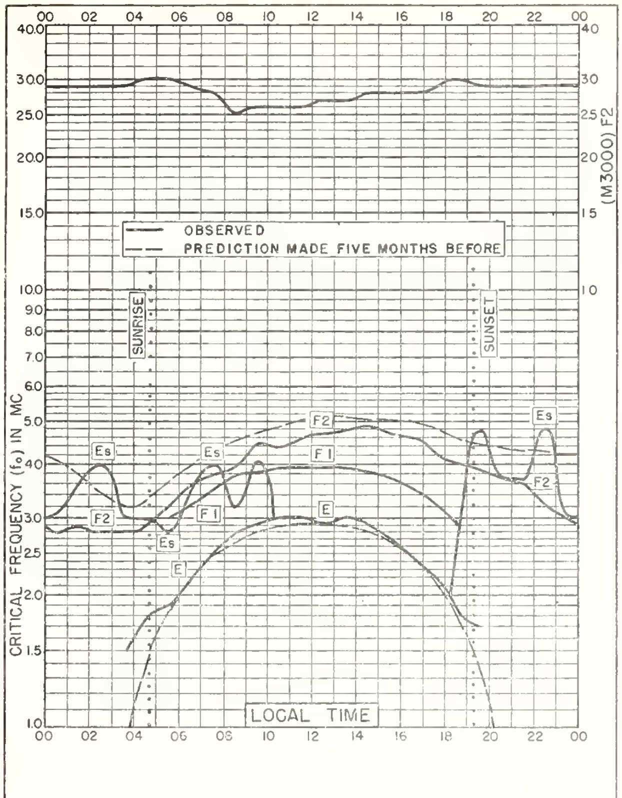


Fig. 41. BAKER LAKE, CANADA
64.3°N, 96.0°W APRIL 1952

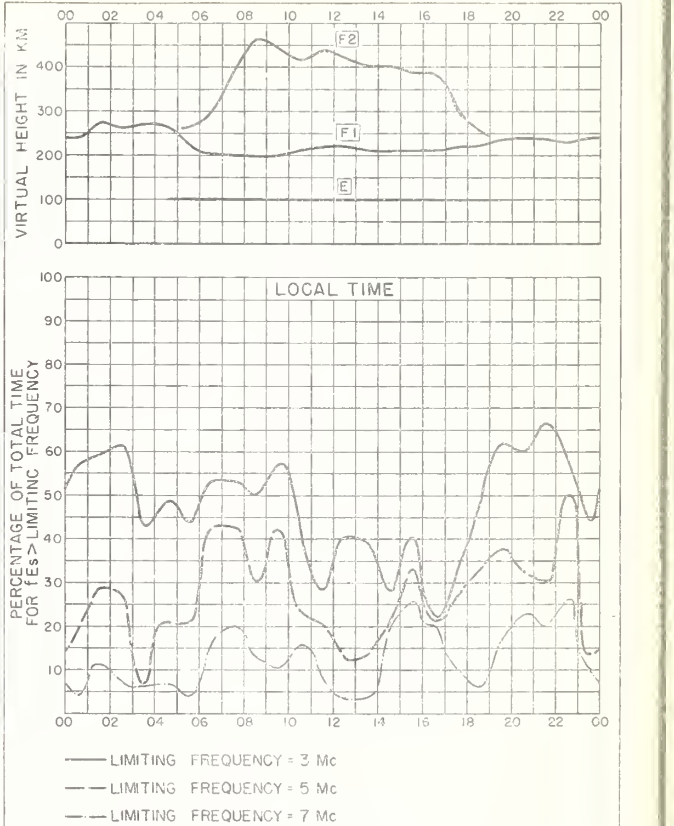


Fig. 42. BAKER LAKE, CANADA APRIL 1952

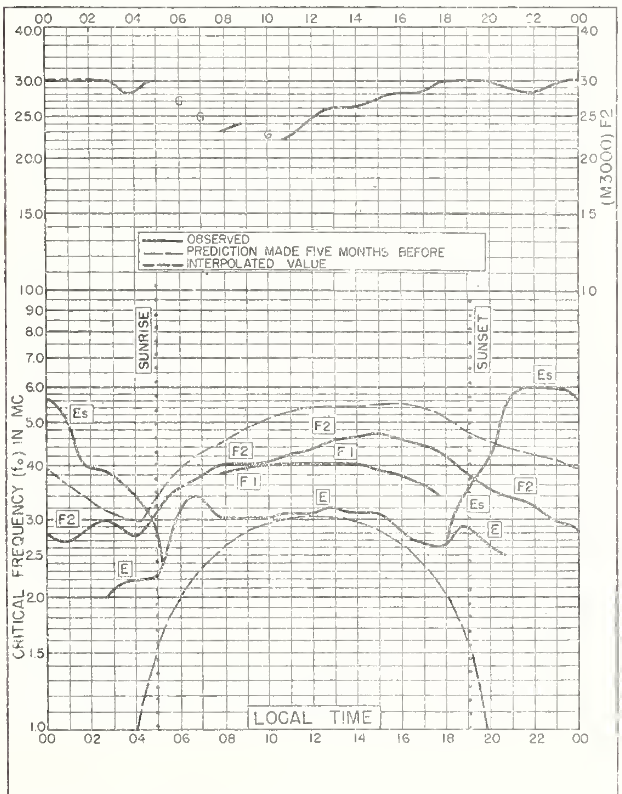


Fig. 43. CHURCHILL, CANADA
58.8°N, 94.2°W APRIL 1952

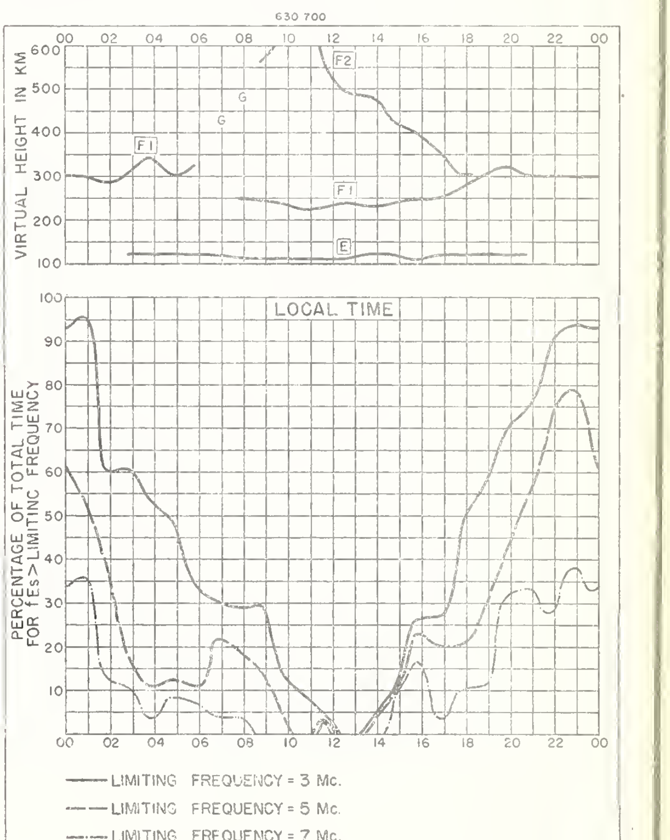


Fig. 44. CHURCHILL, CANADA APRIL 1952

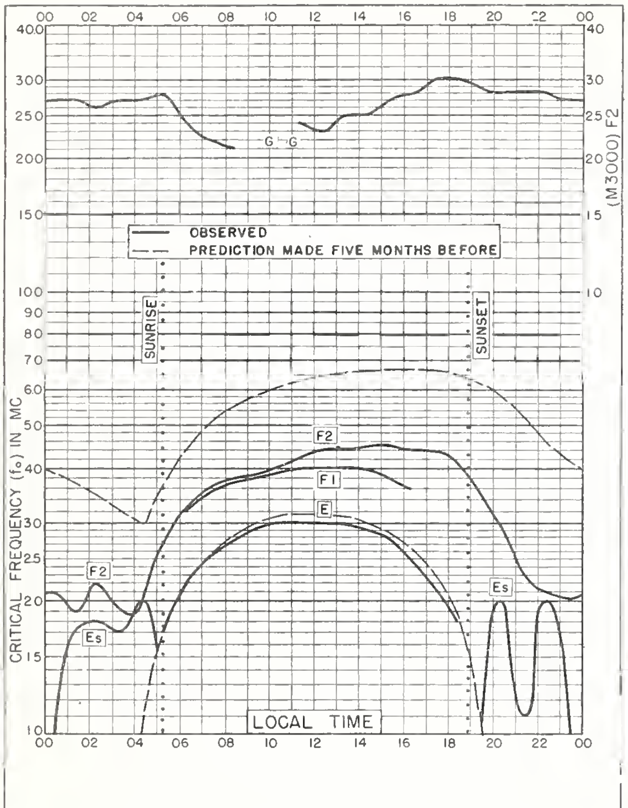


Fig. 45. PRINCE RUPERT, CANADA
54.3°N, 130.3°W APRIL 1952

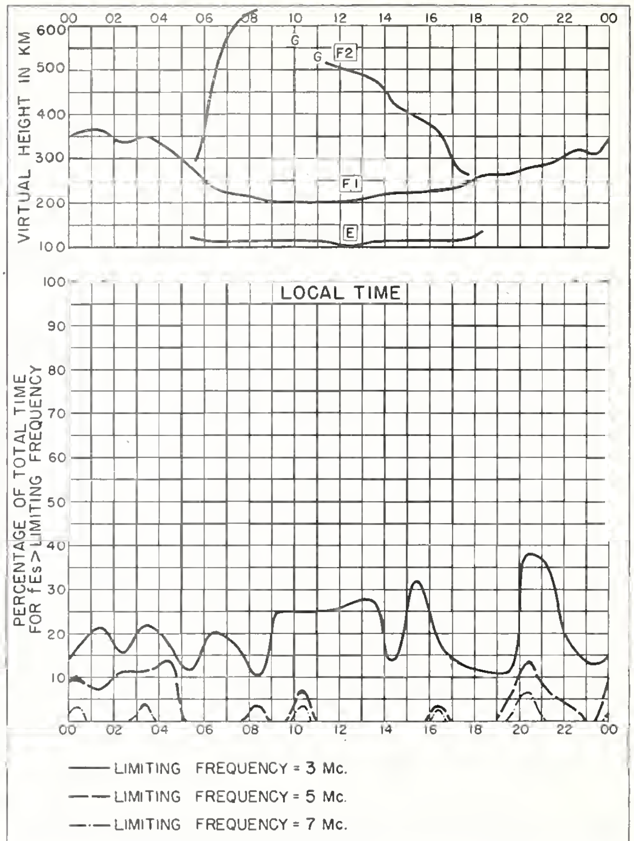


Fig. 46. PRINCE RUPERT, CANADA APRIL 1952

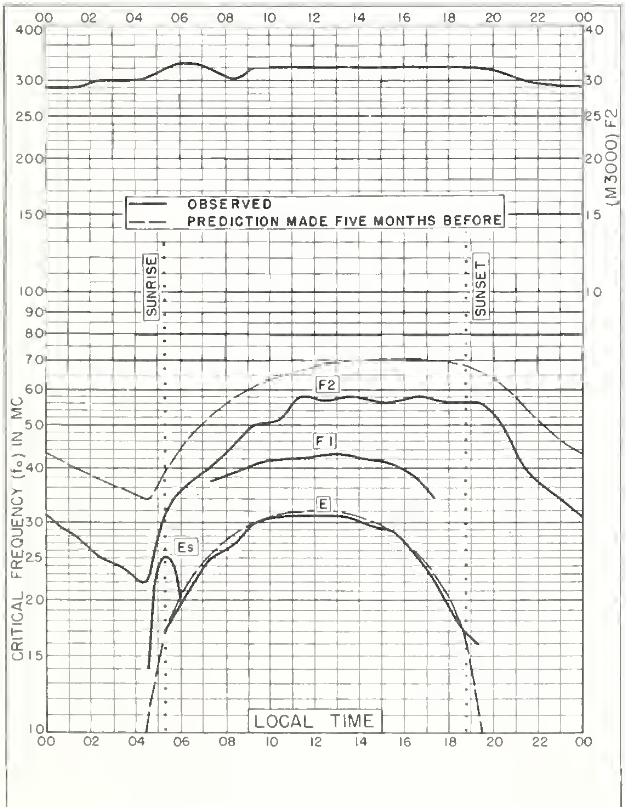


Fig. 47. DE BILT, HOLLAND
52.1°N, 5.2°E APRIL 1952

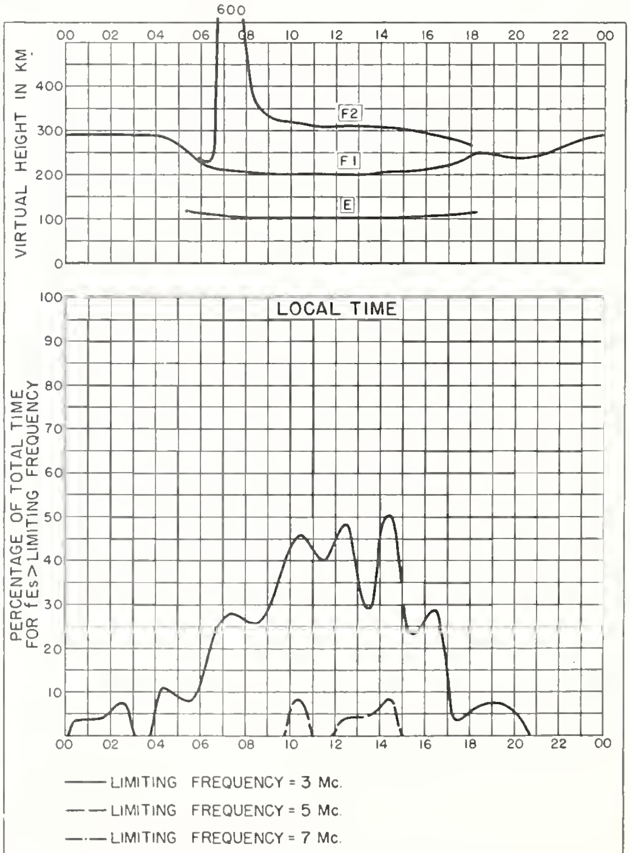


Fig. 48. DE BILT, HOLLAND APRIL 1952

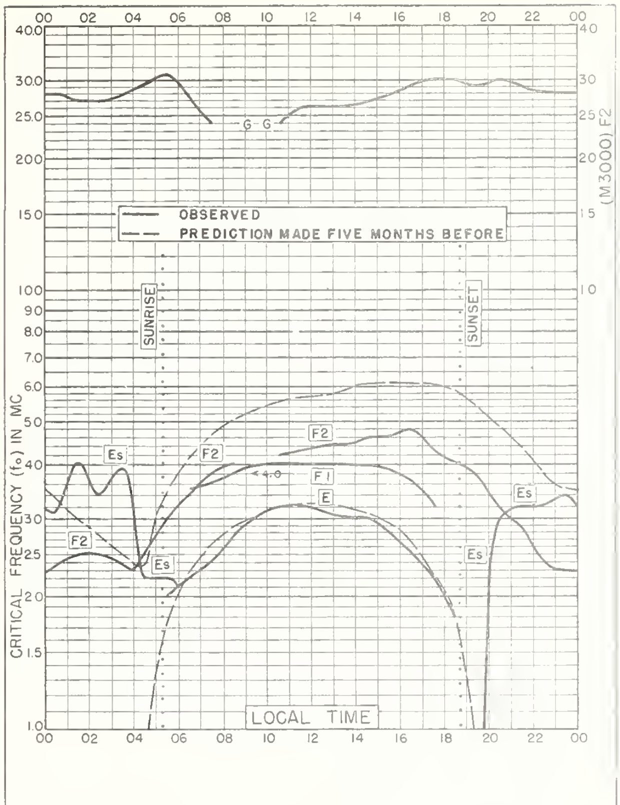


Fig. 49. WINNIPEG, CANADA
49.9° N, 97.4° W APRIL 1952

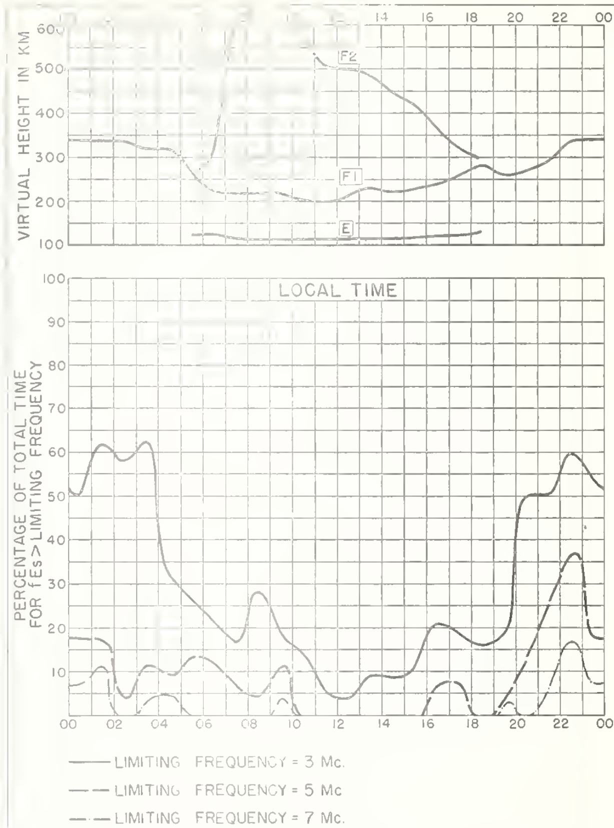


Fig 50. WINNIPEG, CANADA APRIL 1952

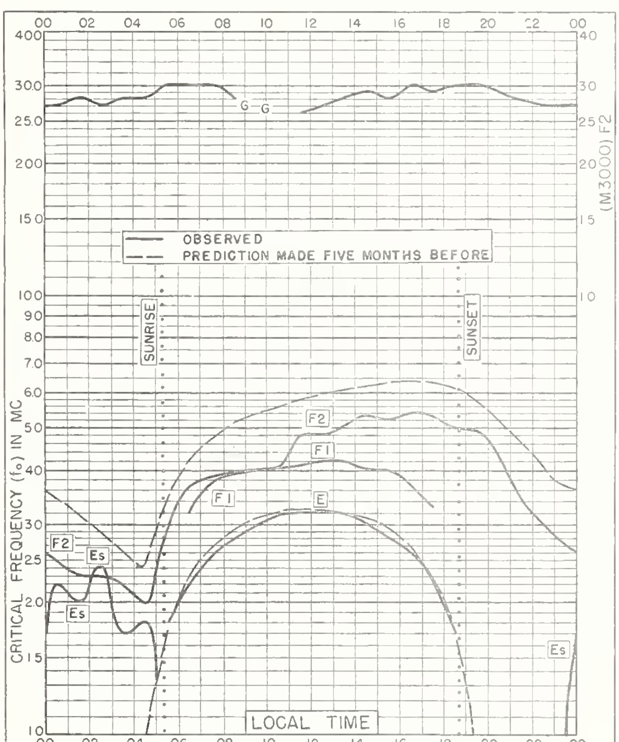


Fig. 51. ST. JOHN'S, NEWFOUNDLAND
47.6°N, 52.7°W APRIL 1952

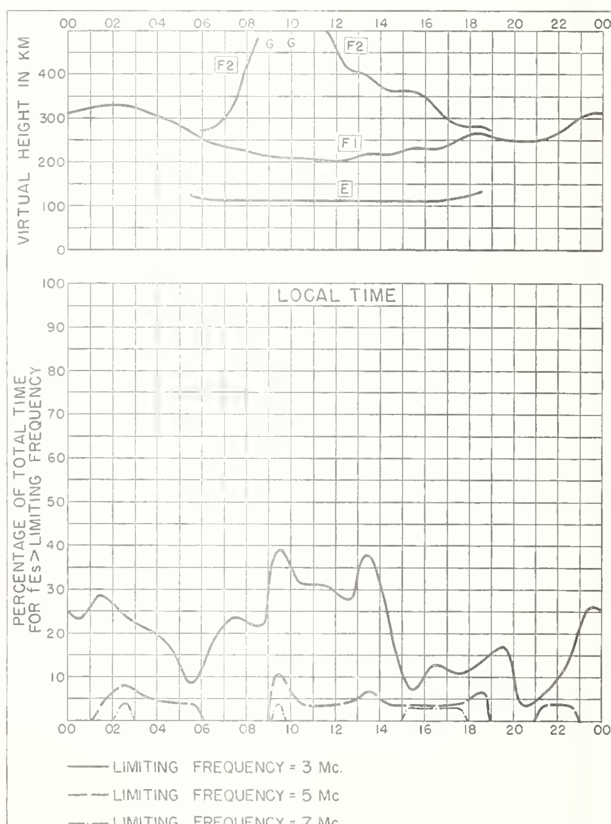


Fig. 52. ST JOHN'S, NEWFOUNDLAND APRIL 1952

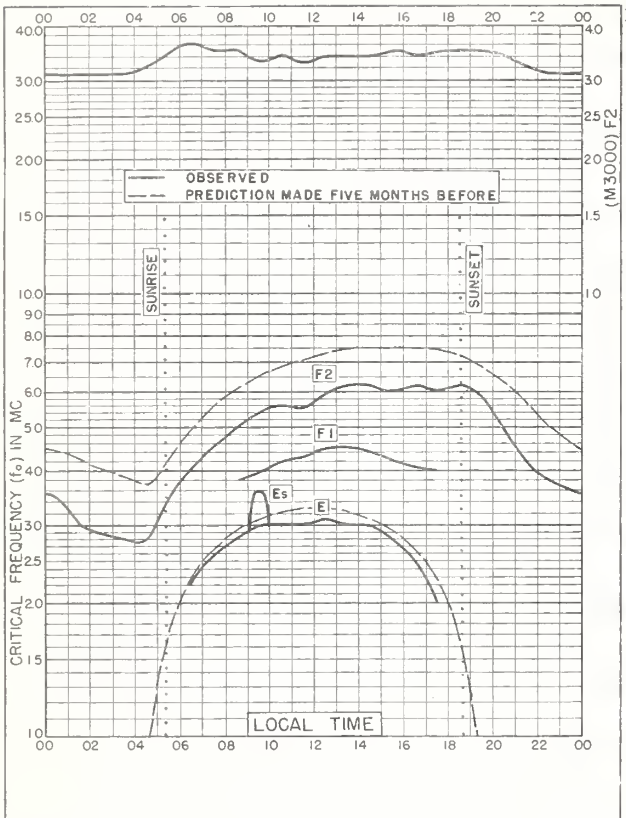


Fig. 53. SCHWARZENBURG, SWITZERLAND
46.8° N, 7.3° E APRIL 1952

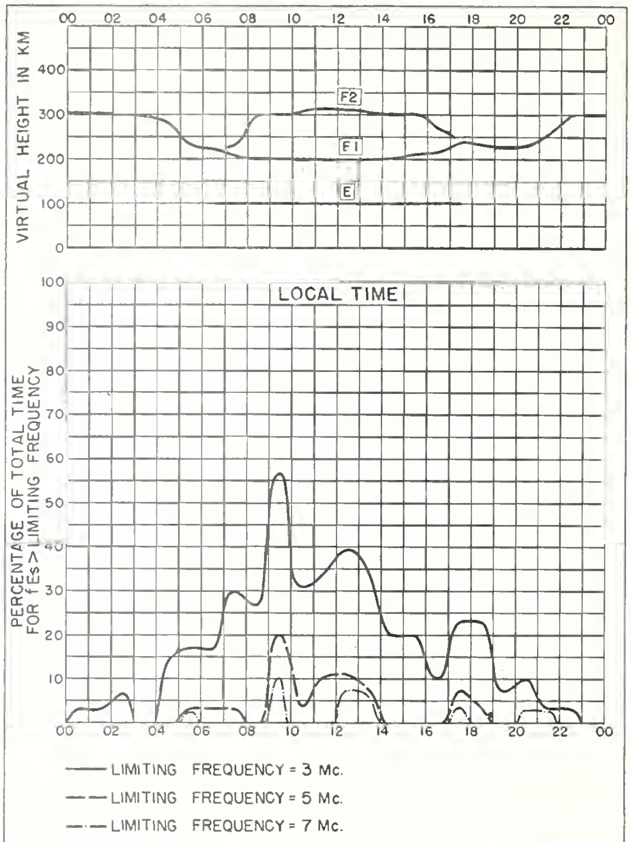


Fig. 54. SCHWARZENBURG, SWITZERLAND APRIL 1952

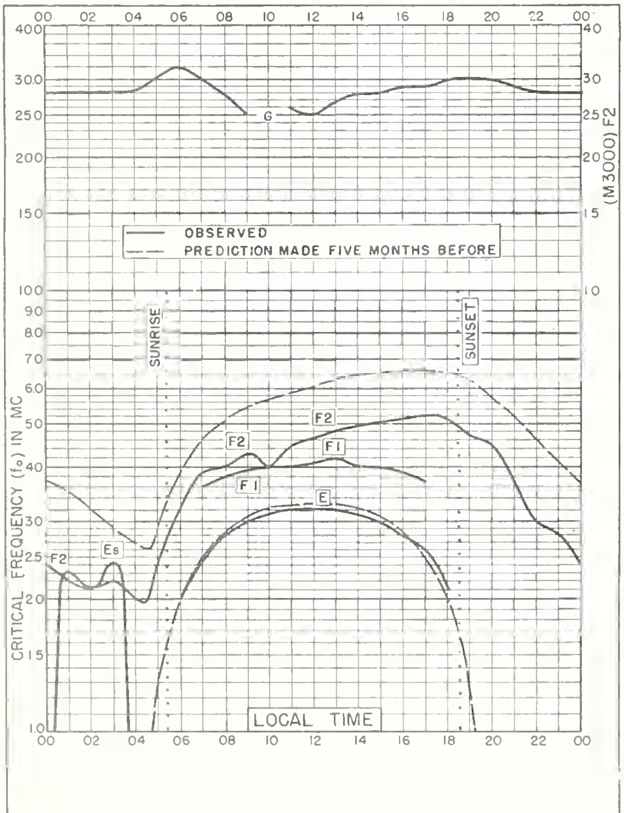


Fig. 55. OTTAWA, CANADA
45.4°N, 75.7°W APRIL 1952

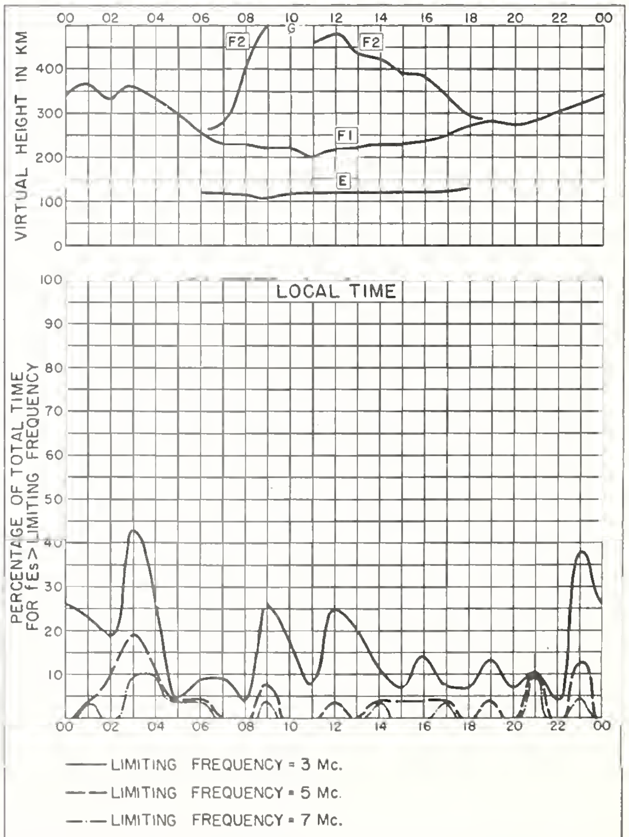


Fig. 56. OTTAWA, CANADA APRIL 1952

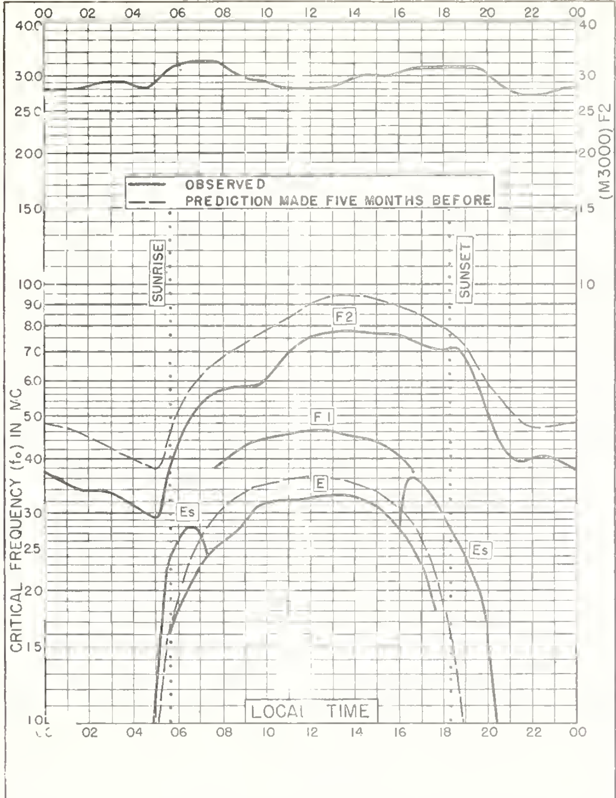


Fig. 57 COCOA, FLORIDA
28.2°N, 80.6°W APRIL 1952

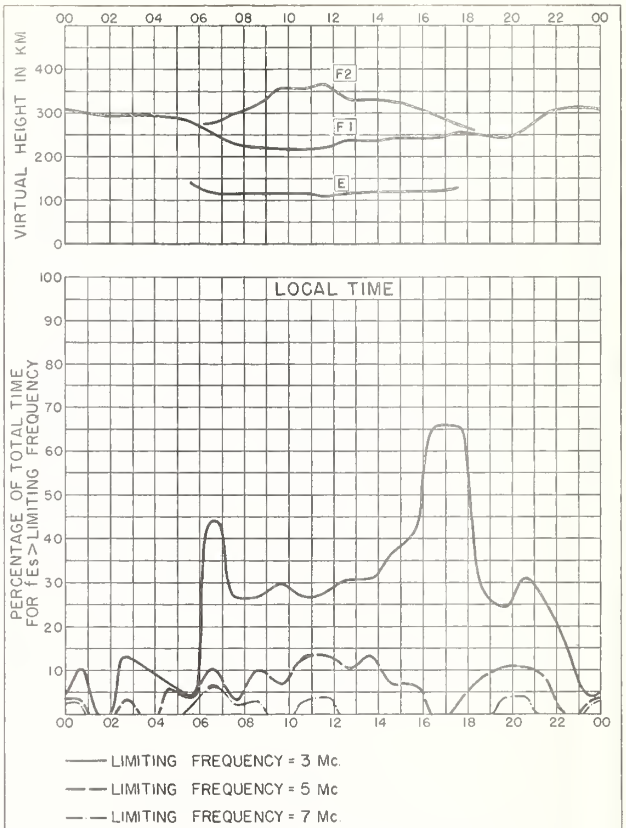


Fig. 58. COCOA, FLORIDA APRIL 1952

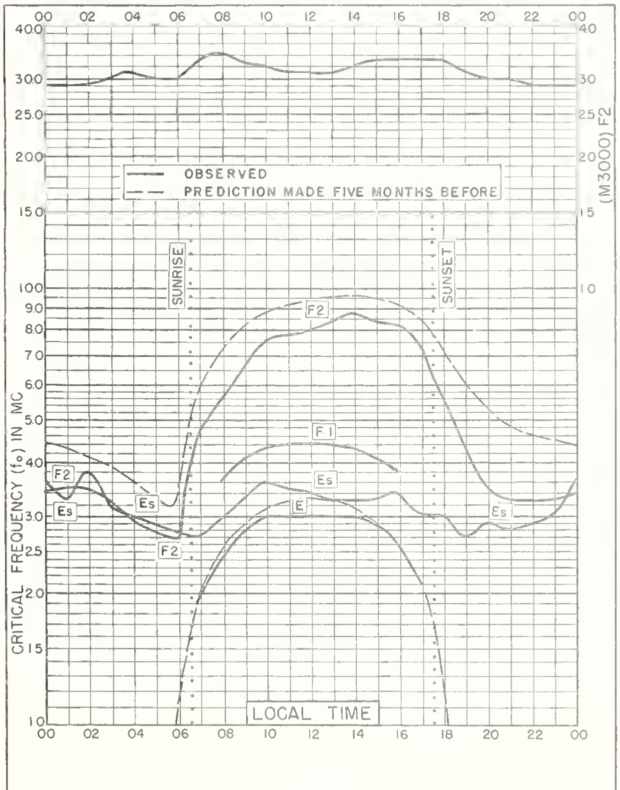


Fig. 59 WATHEROO, W. AUSTRALIA
30.3° S, 115.9°E APRIL 1952

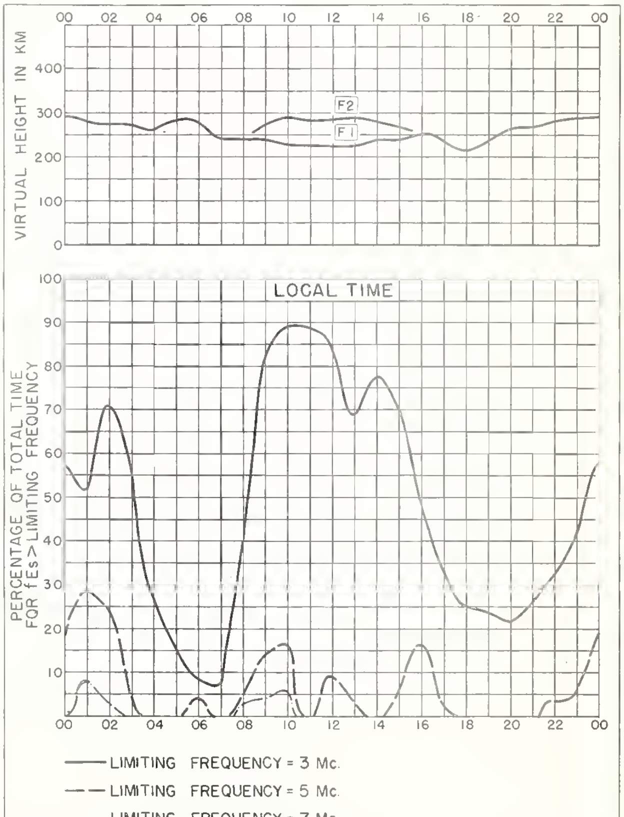


Fig. 60. WATHEROO, W. AUSTRALIA APRIL 1952

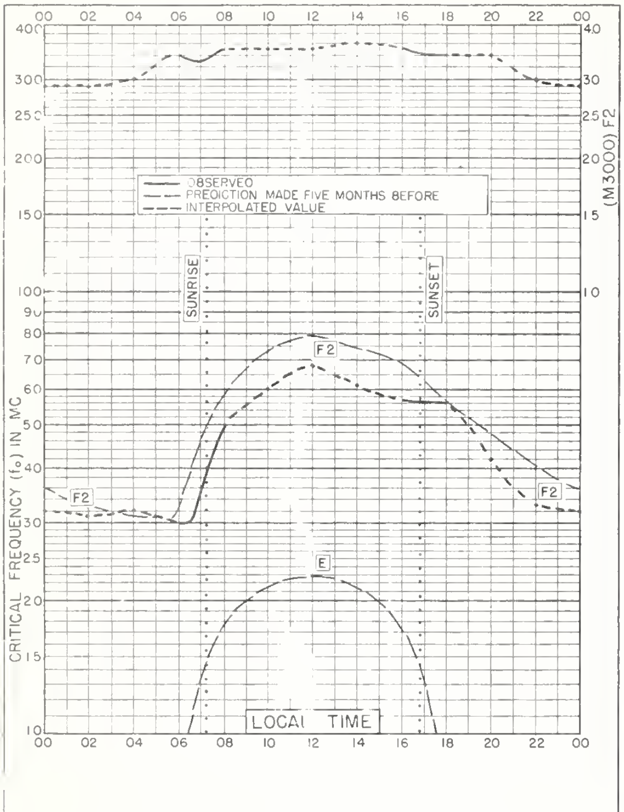


Fig. 61. DECEPCION I
63.0°S, 60.7°W APRIL 1952

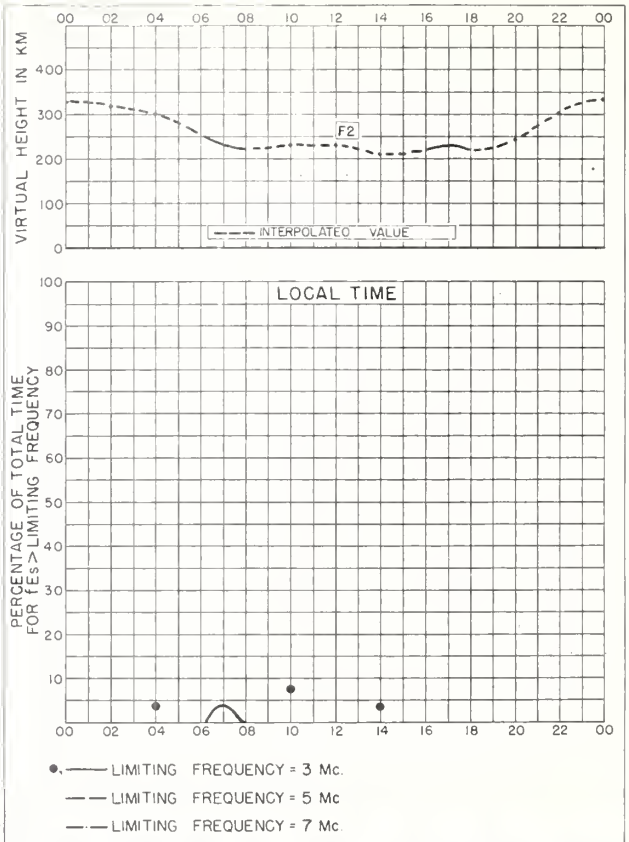


Fig 62. DECEPCION I APRIL 1952

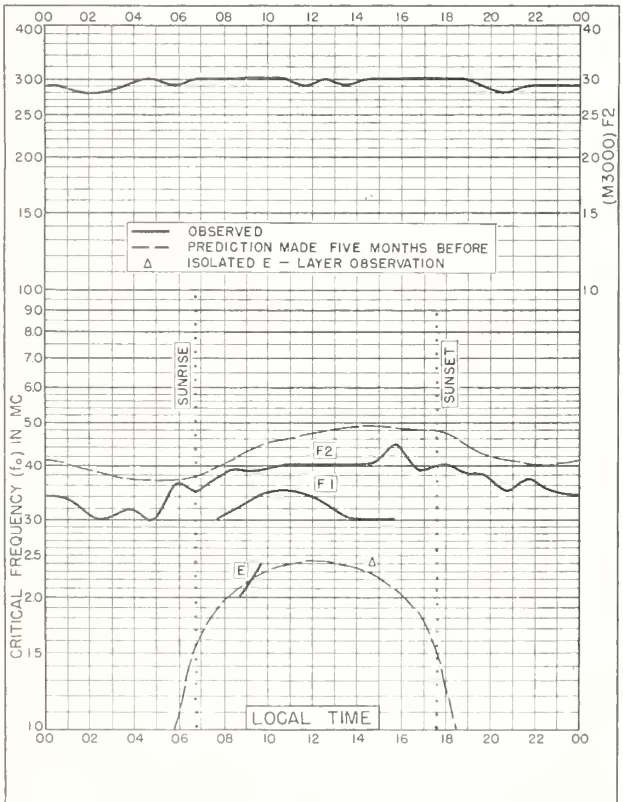


Fig. 63. RESOLUTE BAY, CANADA
74.7°N, 94.9°W MARCH 1952

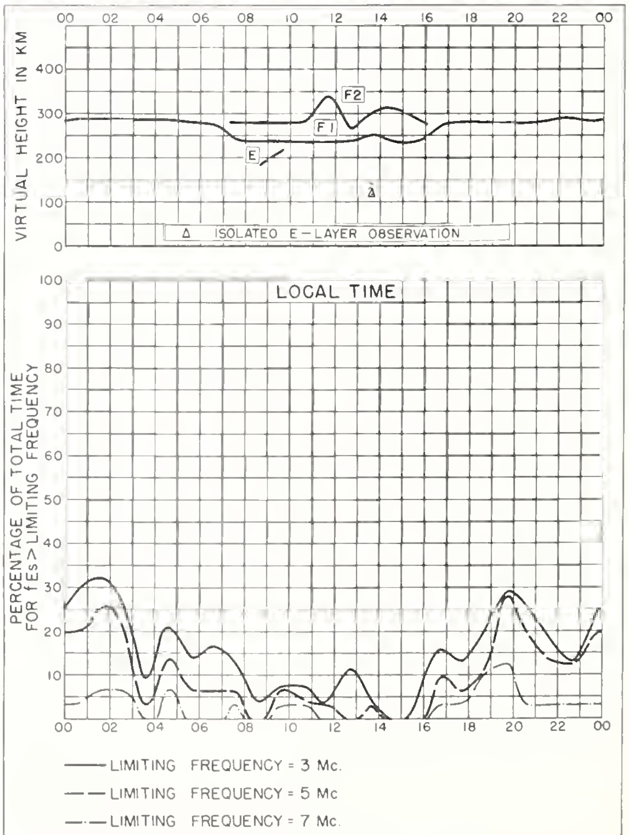


Fig. 64. RESOLUTE BAY, CANADA MARCH 1952

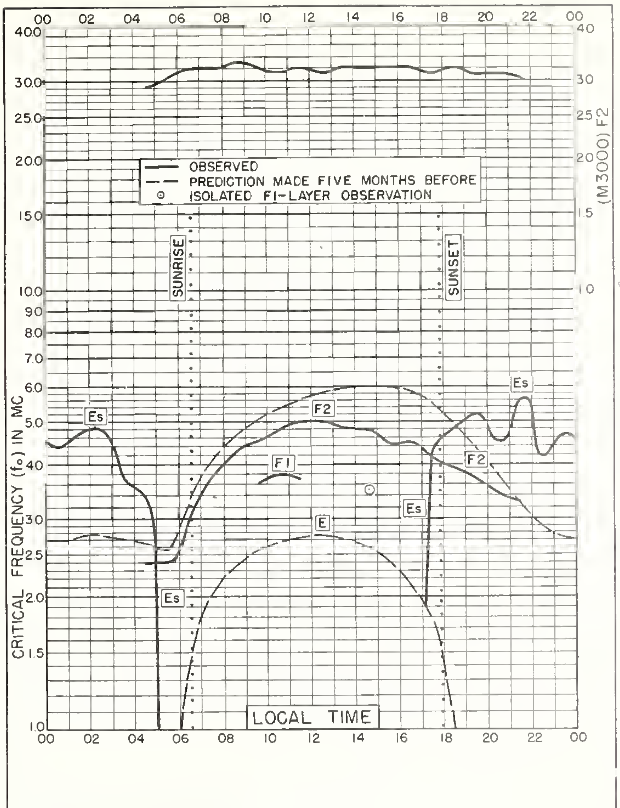


Fig. 65. REYKJAVIK, ICELAND
64.1° N, 21.8° W MARCH 1952

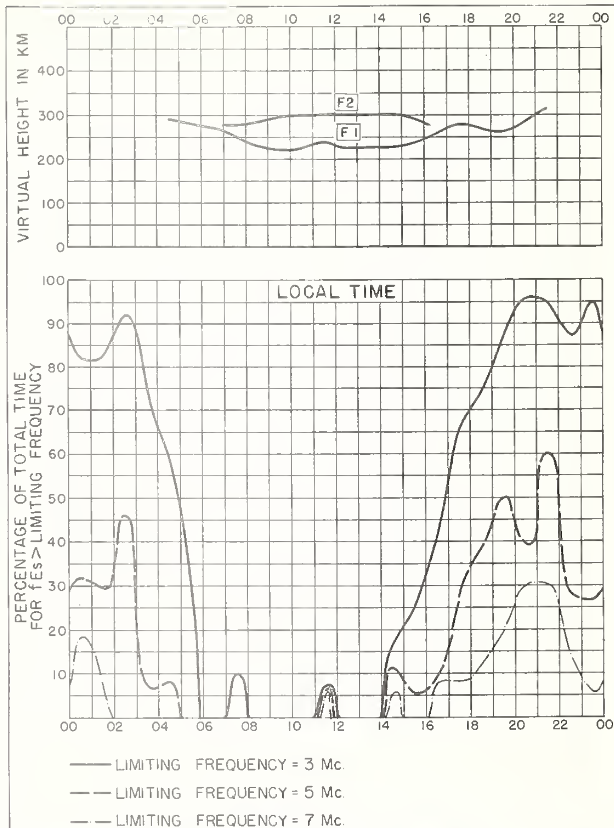


Fig. 66. REYKJAVIK, ICELAND MARCH 1952

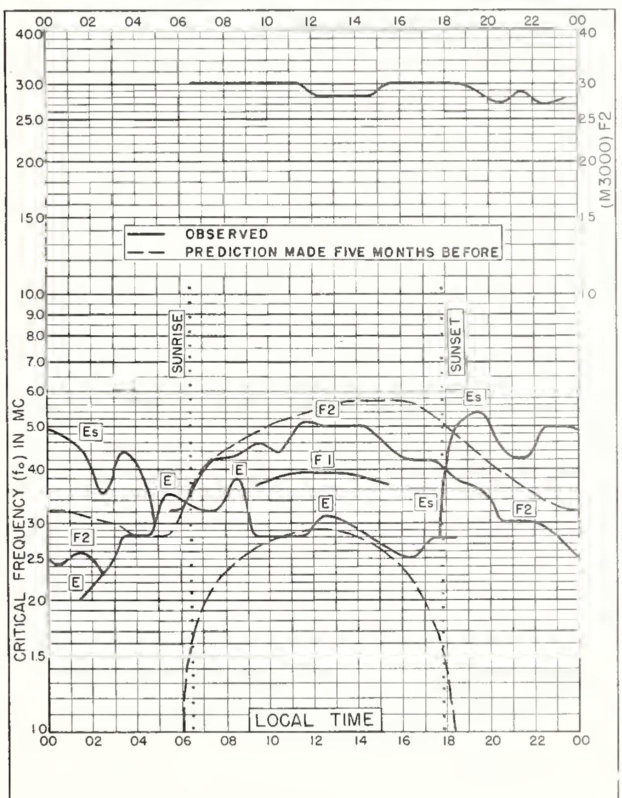


Fig. 67. FORT CHIMO, CANADA
58.1°N, 68.3°W MARCH 1952

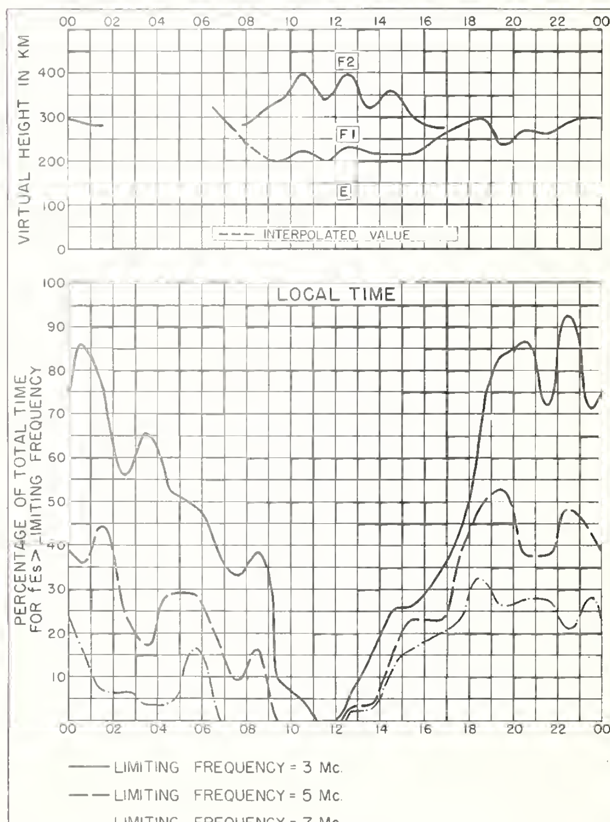


Fig 68. FORT CHIMO, CANADA MARCH 1952

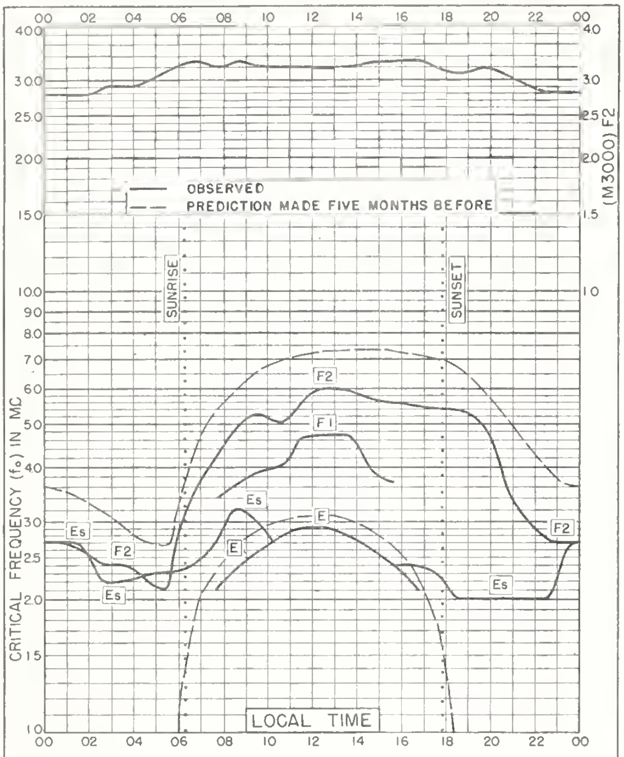


Fig. 69. LINDAU / HARZ, GERMANY
51.6°N, 10.1°E MARCH 1952

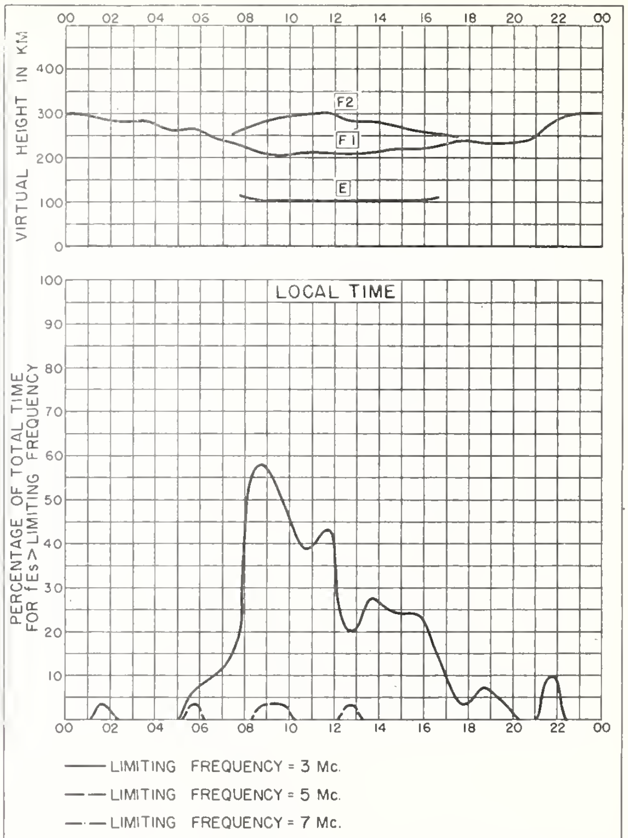


Fig. 70. LINDAU/HARZ, GERMANY MARCH 1952

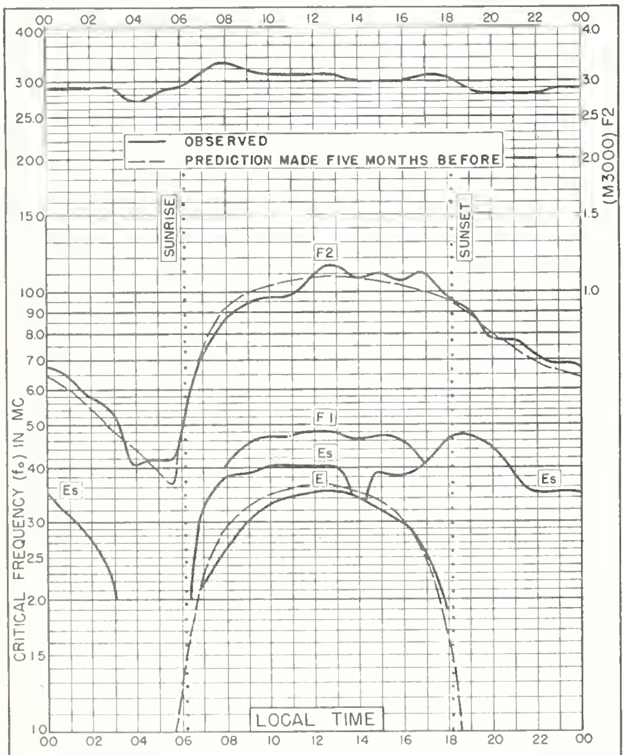


Fig. 71. RAROTONGA I.
21.3° S, 159.8° W MARCH 1952

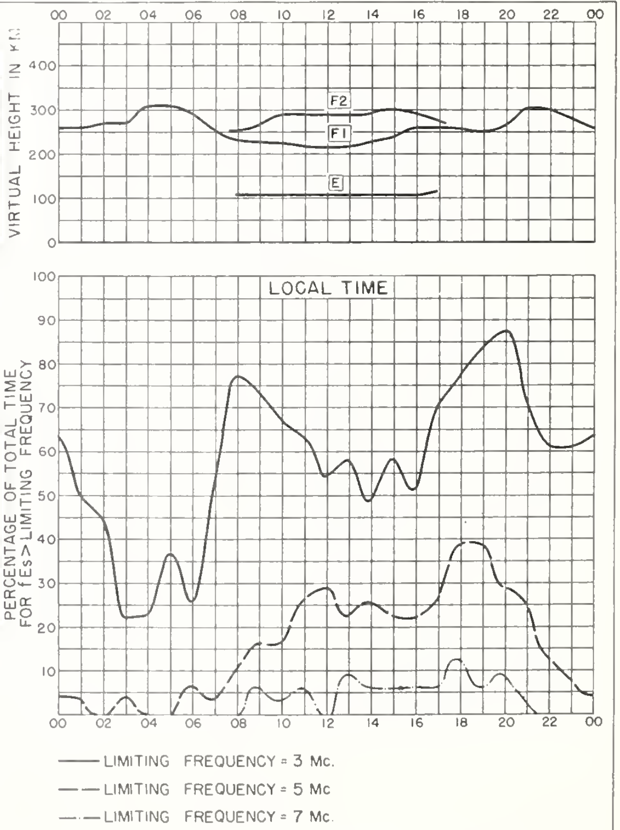


Fig 72. RAROTONGA I. MARCH 1952

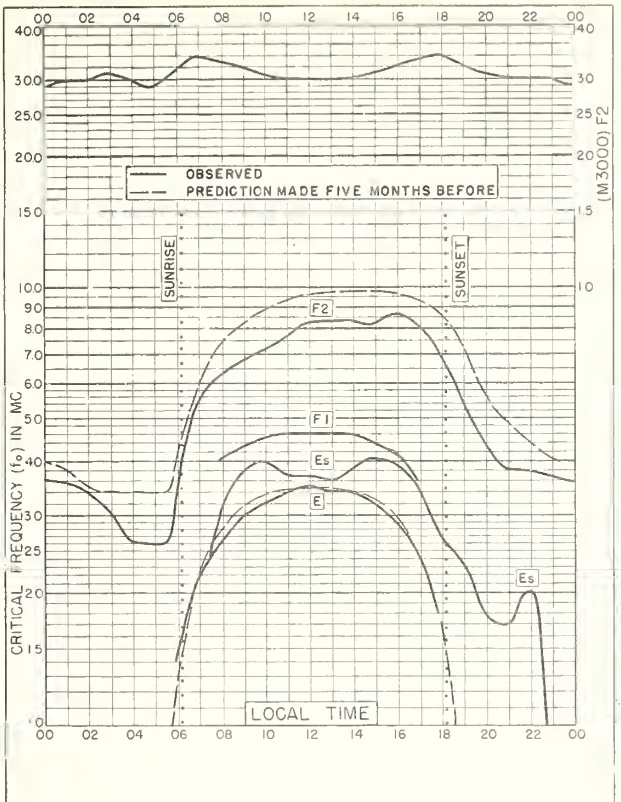


Fig. 73. JOHANNESBURG, U. OF S. AFRICA
26.2° S, 28.1° E MARCH 1952

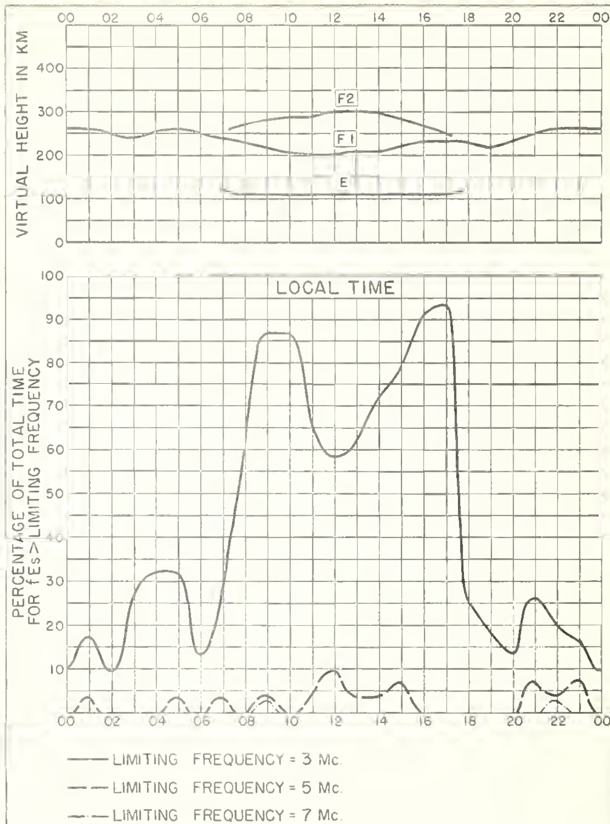


Fig. 74. JOHANNESBURG, U. OF S. AFRICA MARCH 1952

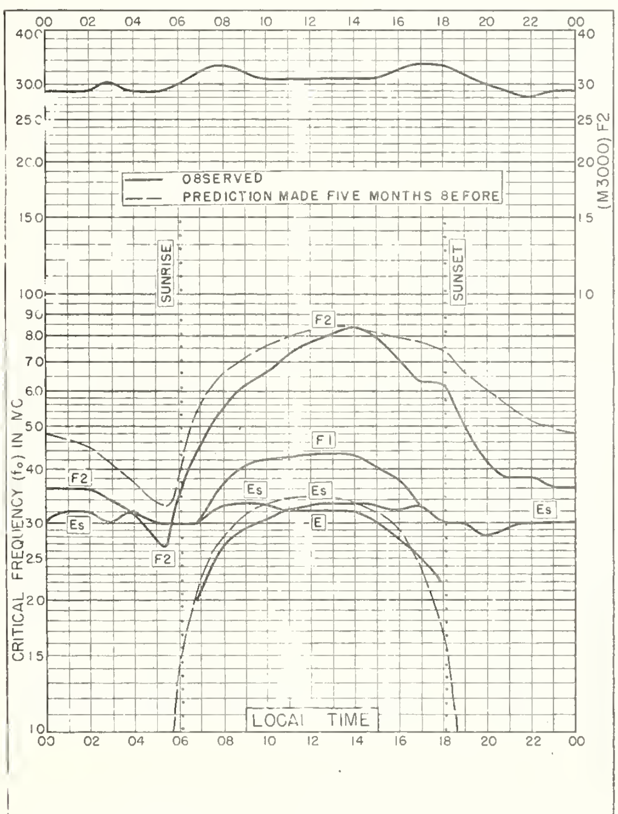


Fig. 75. WATHEROO, W. AUSTRALIA
30.3°S, 115.9°E MARCH 1952

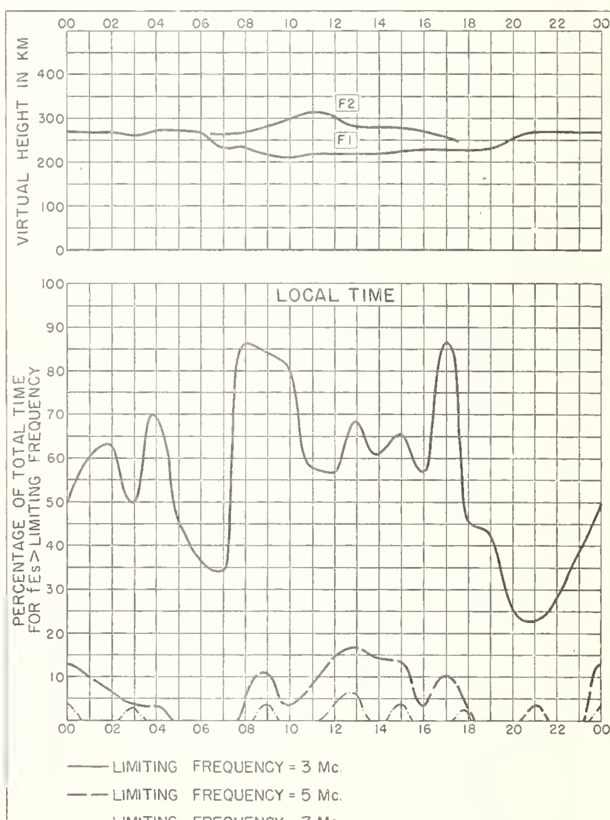


Fig. 76. WATHEROO, W. AUSTRALIA MARCH 1952

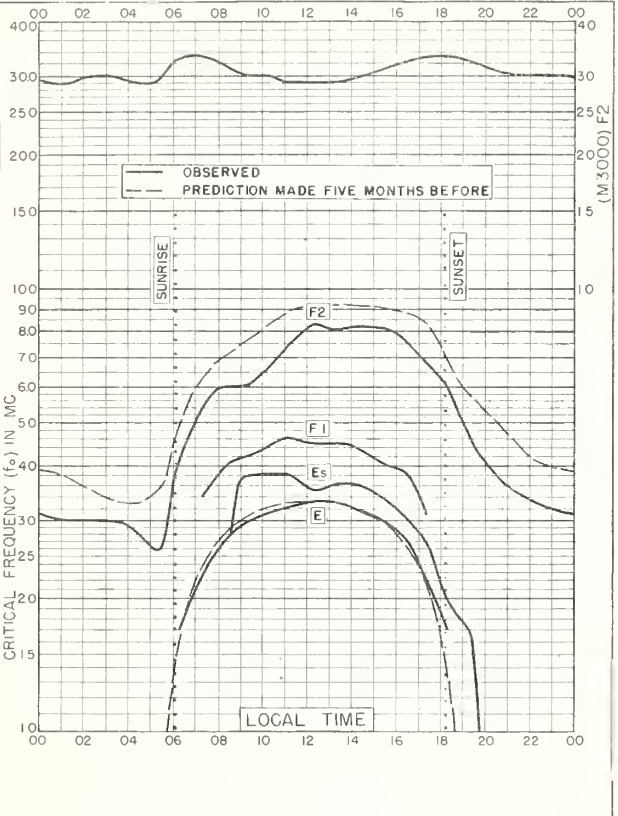


Fig. 77. CAPETOWN, U. OF S. AFRICA
34.2° S, 18.3° E MARCH 1952

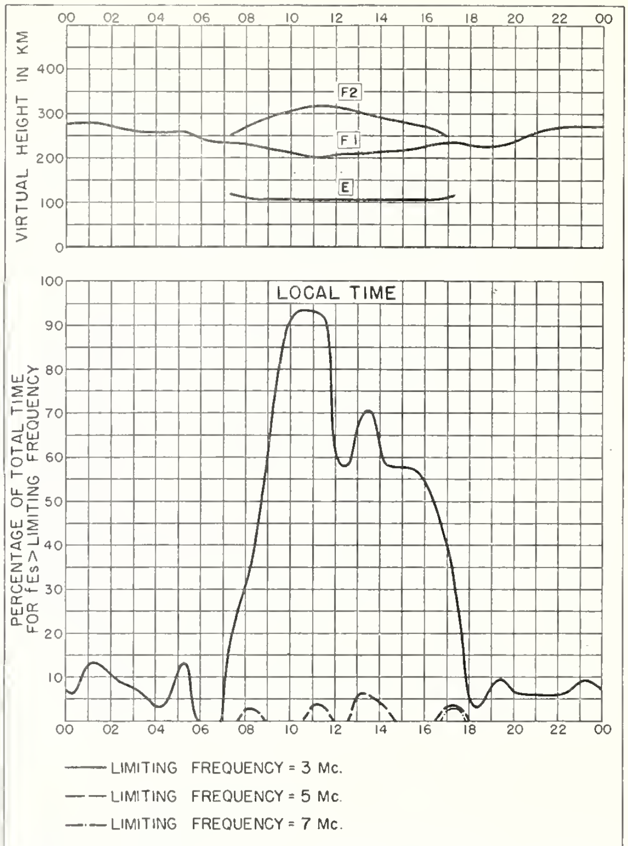


Fig 78. CAPETOWN, U. OF S. AFRICA MARCH 1952

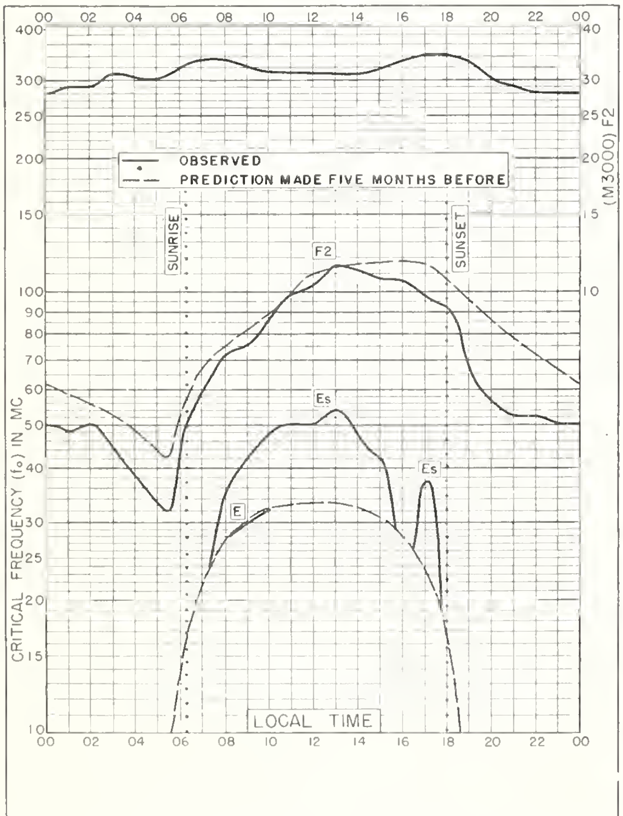


Fig. 79. BUENOS AIRES, ARGENTINA
34.5° S, 58.5° W MARCH 1952

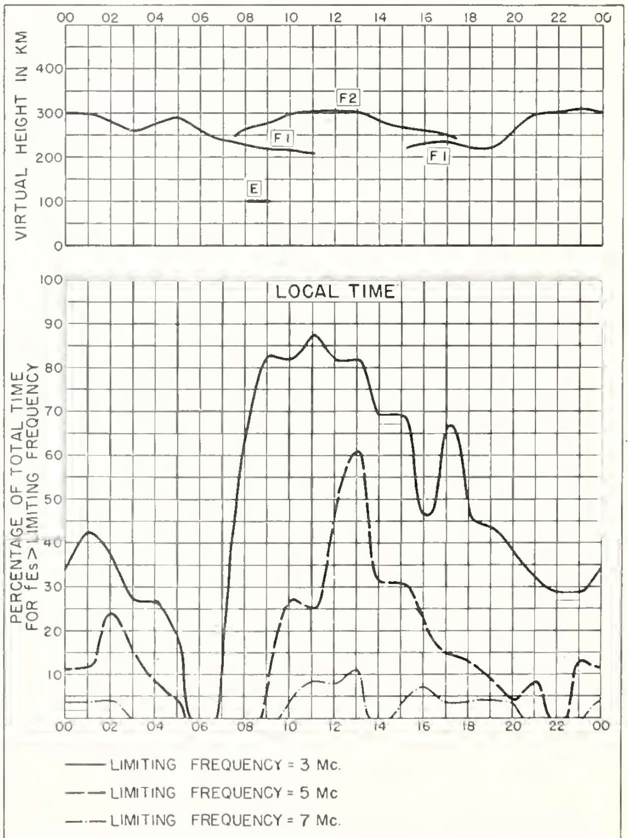


Fig. 80. BUENOS AIRES, ARGENTINA MARCH 1952

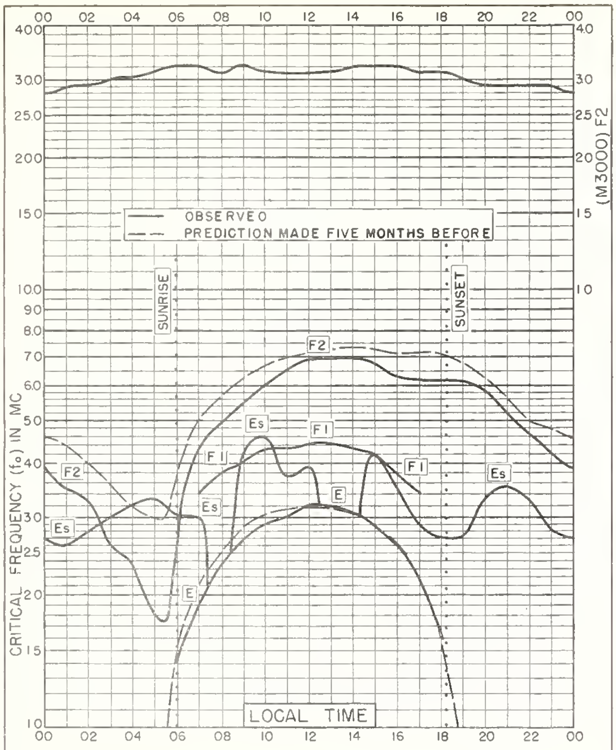


Fig. 81. CHRISTCHURCH, N. Z.
43.6° S, 172.7° E MARCH 1952

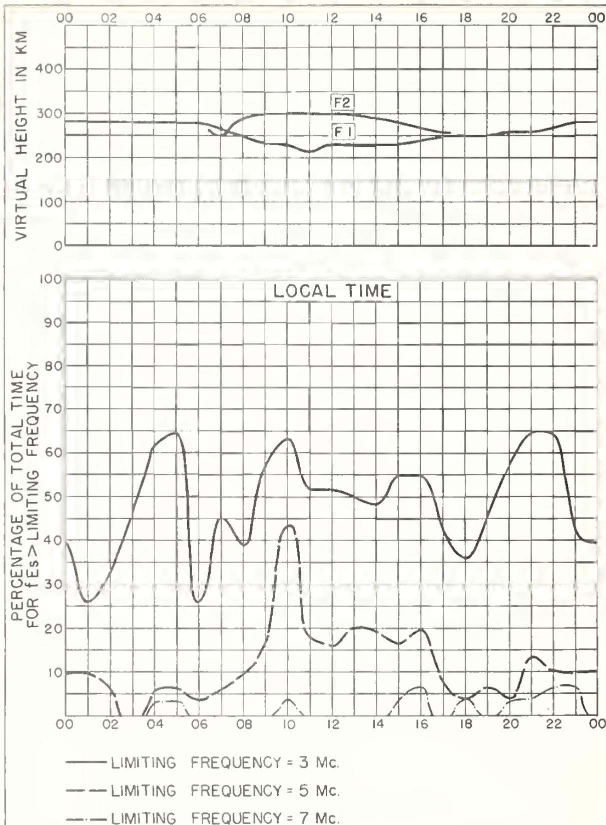


Fig. 82. CHRISTCHURCH, N. Z. MARCH 1952

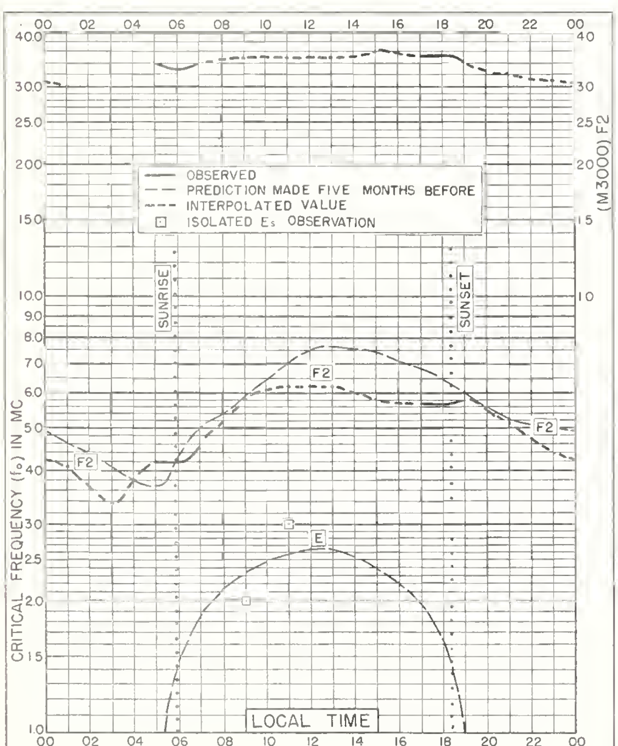


Fig. 83. DECEPCION I.
63.0°S, 60.7°W MARCH 1952

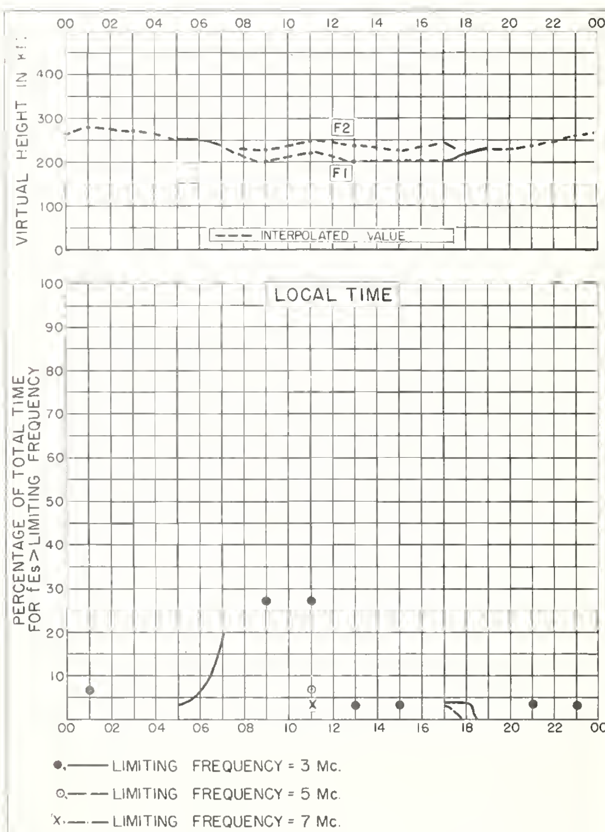


Fig. 84. DECEPCION I. MARCH 1952

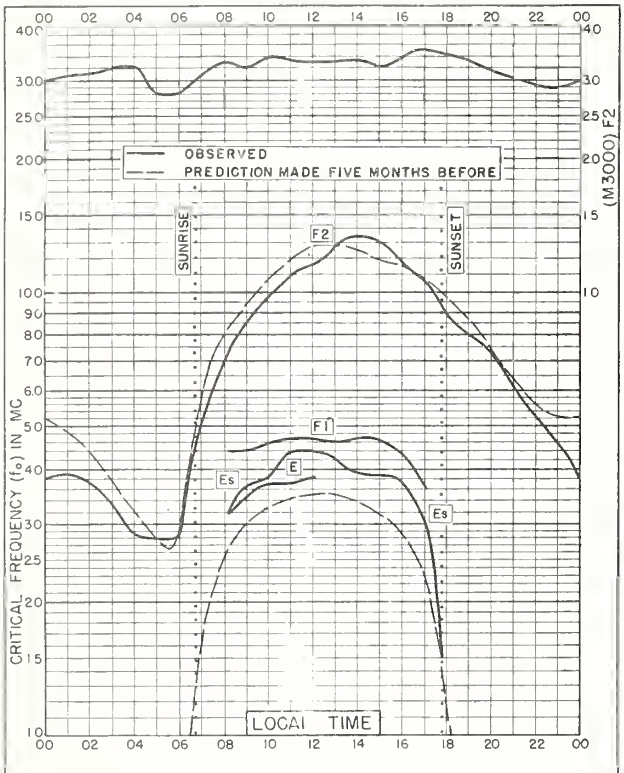


Fig. 85. FORMOSA, CHINA
25.0°N, 121.5°E FEBRUARY 1952

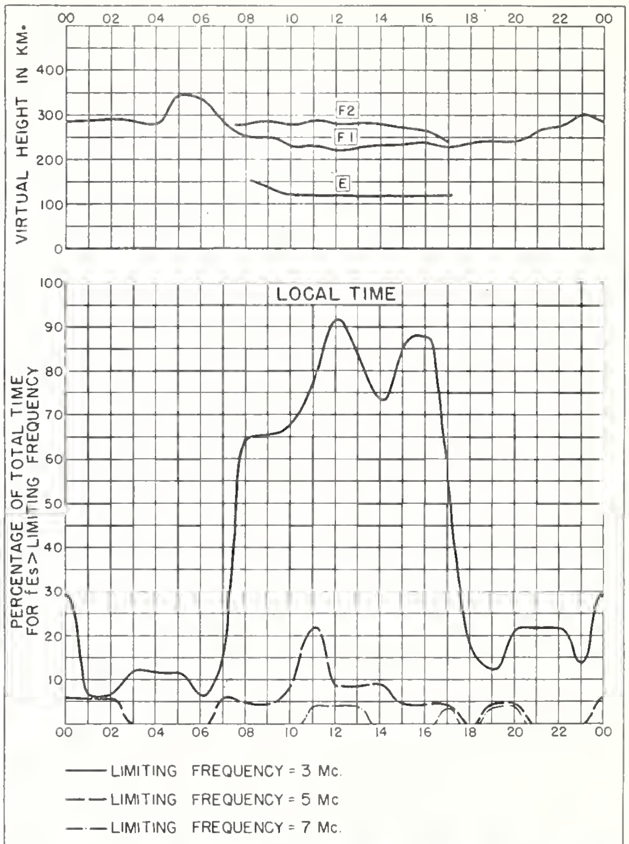


Fig. 86. FORMOSA, CHINA FEBRUARY 1952

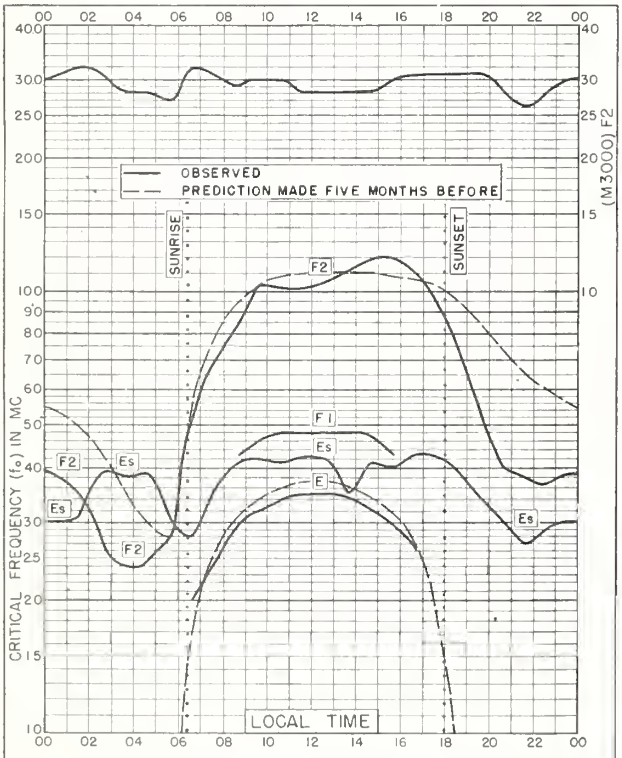


Fig. 87 PANAMA CANAL ZONE
9.4°N, 79.9°W FEBRUARY 1952

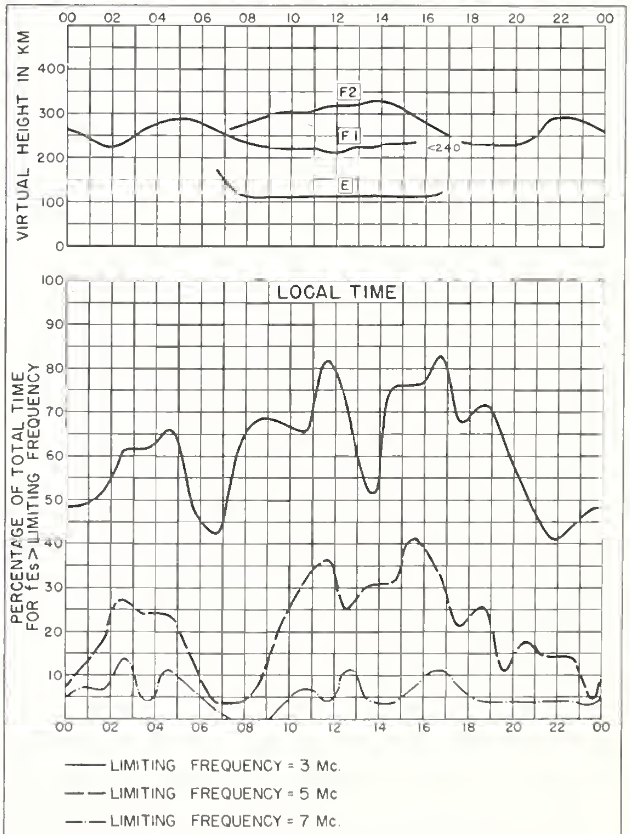


Fig. 88. PANAMA CANAL ZONE FEBRUARY 1952

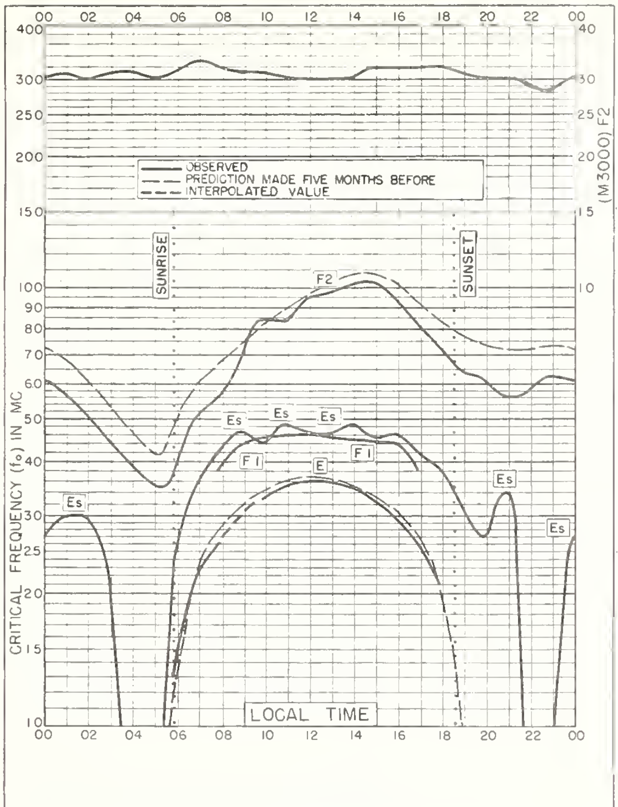


Fig. 89. TOWNSVILLE, AUSTRALIA
19.3°S, 146.8°E FEBRUARY 1952

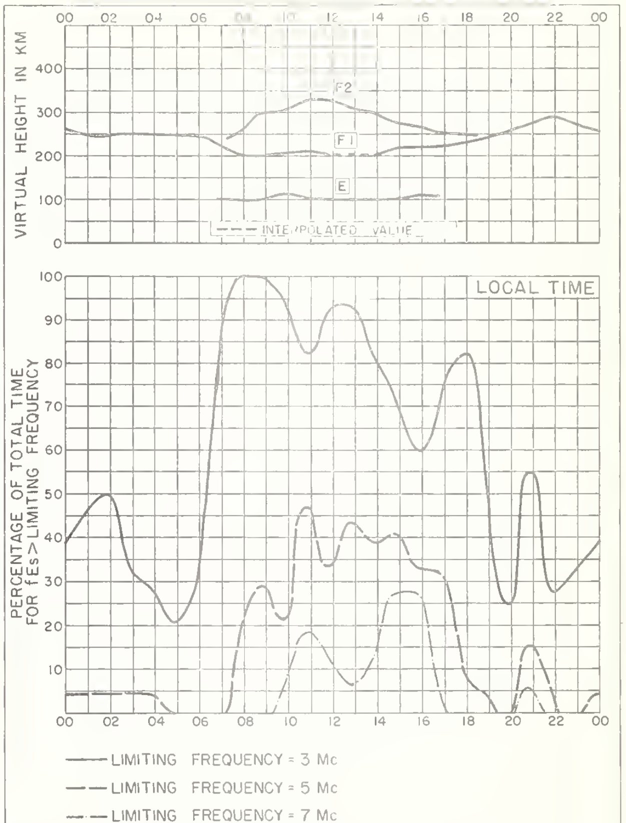


Fig. 90. TOWNSVILLE, AUSTRALIA FEBRUARY 1952

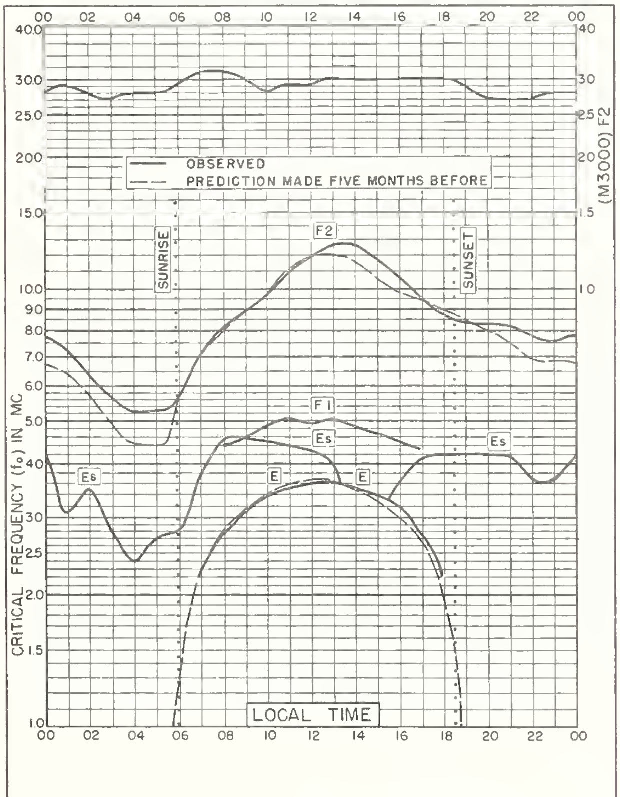


Fig. 91. RAROTONGA I.
21.3°S, 159.8°W FEBRUARY 1952

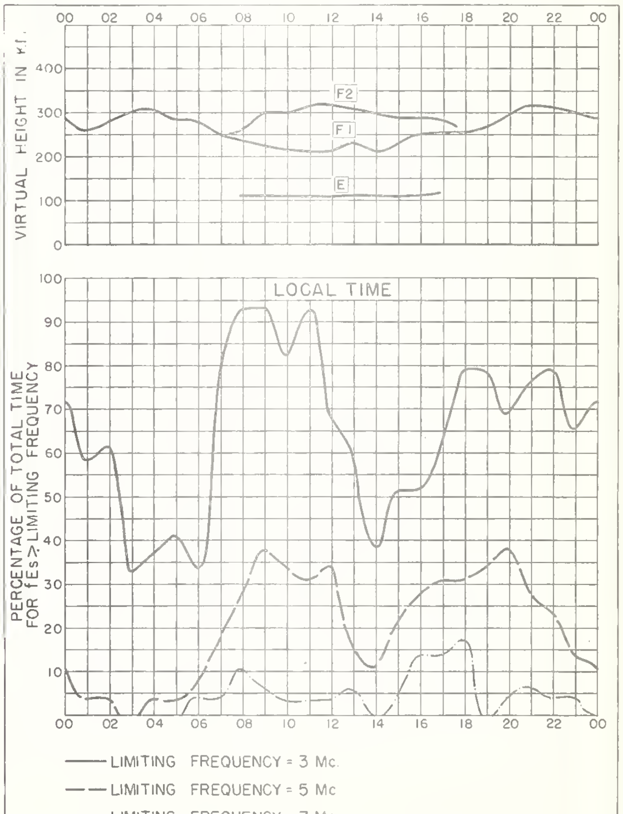


Fig. 92. RAROTONGA I. FEBRUARY 1952

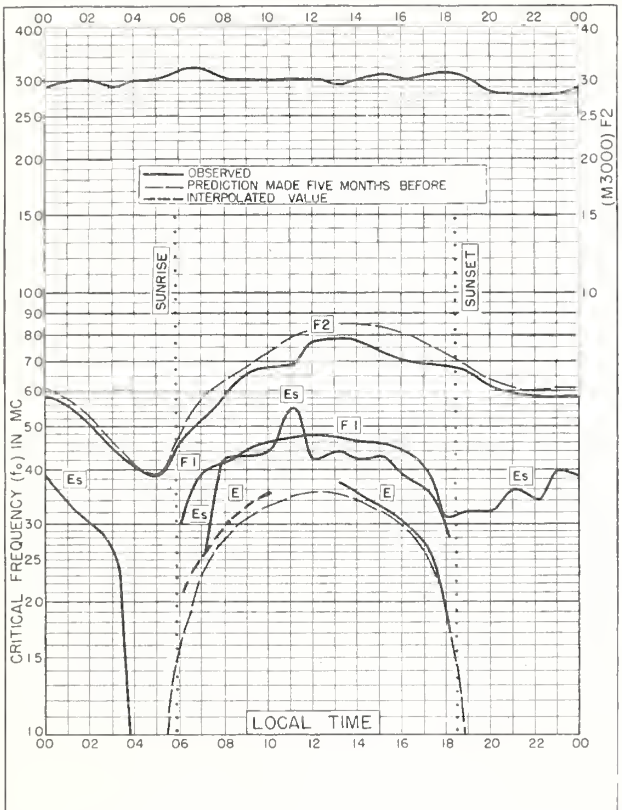


Fig. 93. BRISBANE, AUSTRALIA
27.5° S, 153.0° E FEBRUARY 1952

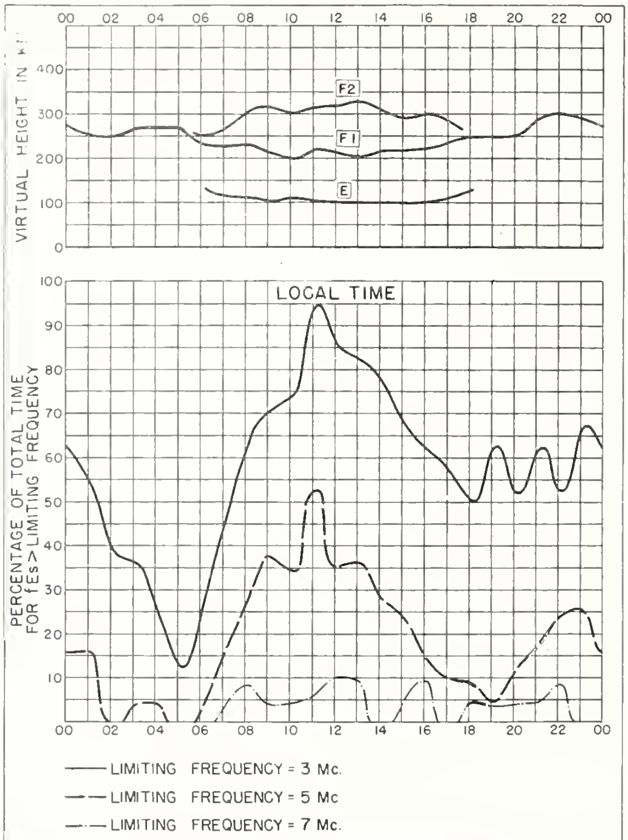


Fig. 94. BRISBANE, AUSTRALIA FEBRUARY 1952

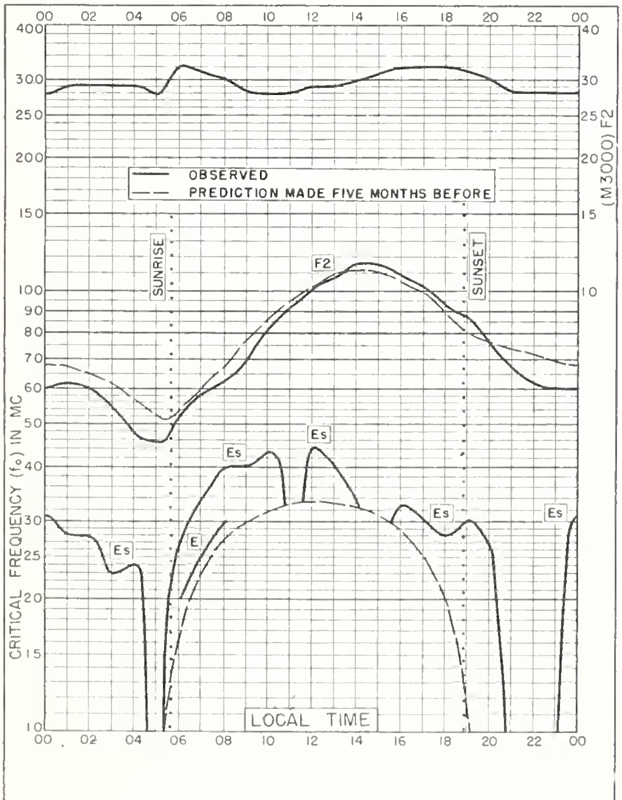


Fig. 95. BUENOS AIRES, ARGENTINA
34.5° S, 58.5° W FEBRUARY 1952

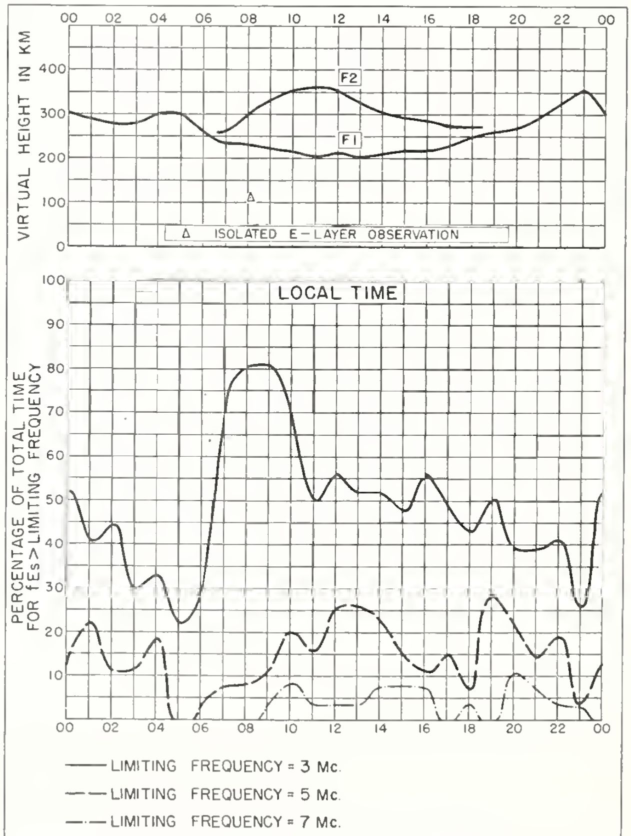


Fig. 96. BUENOS AIRES, ARGENTINA FEBRUARY 1952

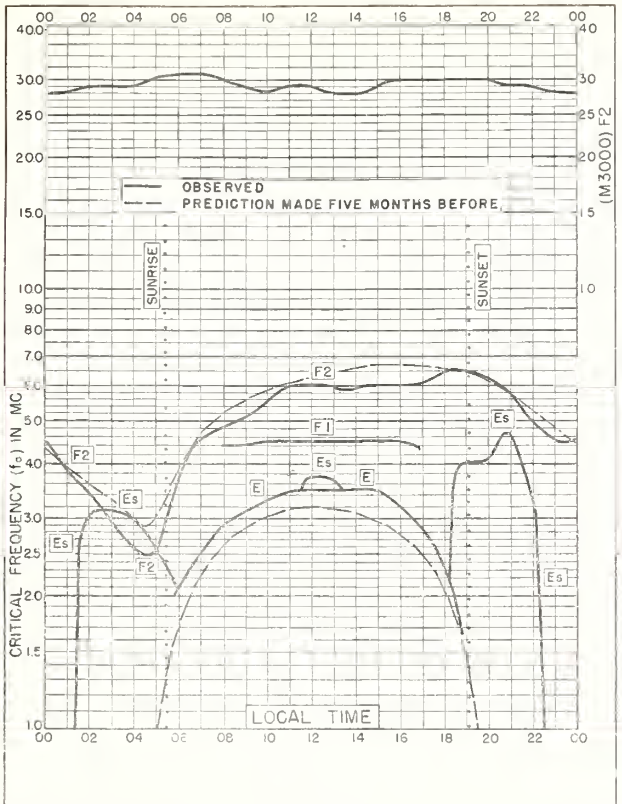


Fig. 97. HOBART, TASMANIA
42.8° S, 147.4°E FEBRUARY 1952

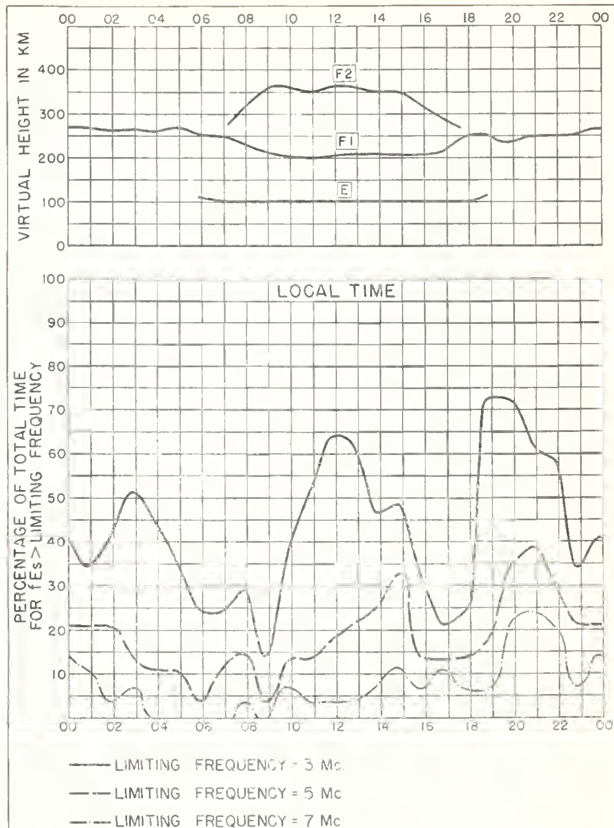


Fig. 98. HOBART, TASMANIA FEBRUARY 1952

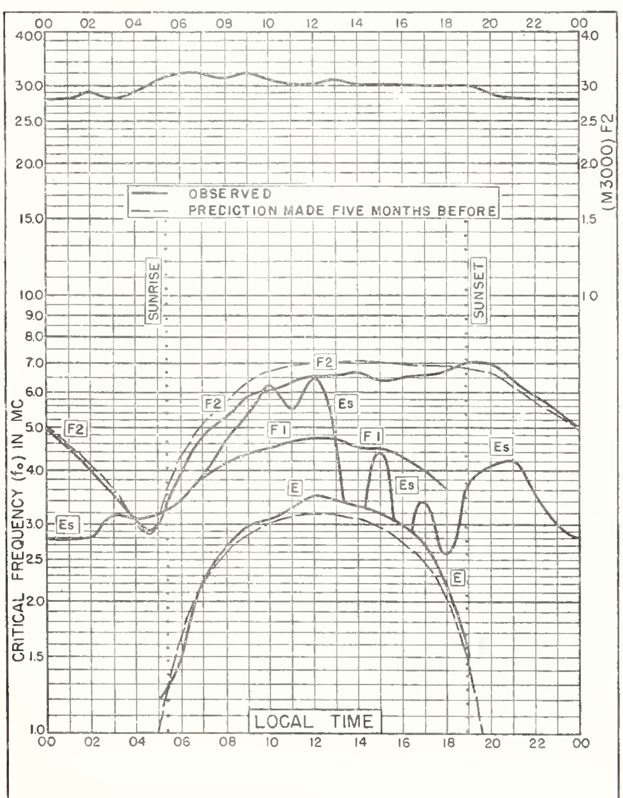


Fig. 99. CHRISTCHURCH, N. Z.
43.6°S, 172.7°E FEBRUARY 1952

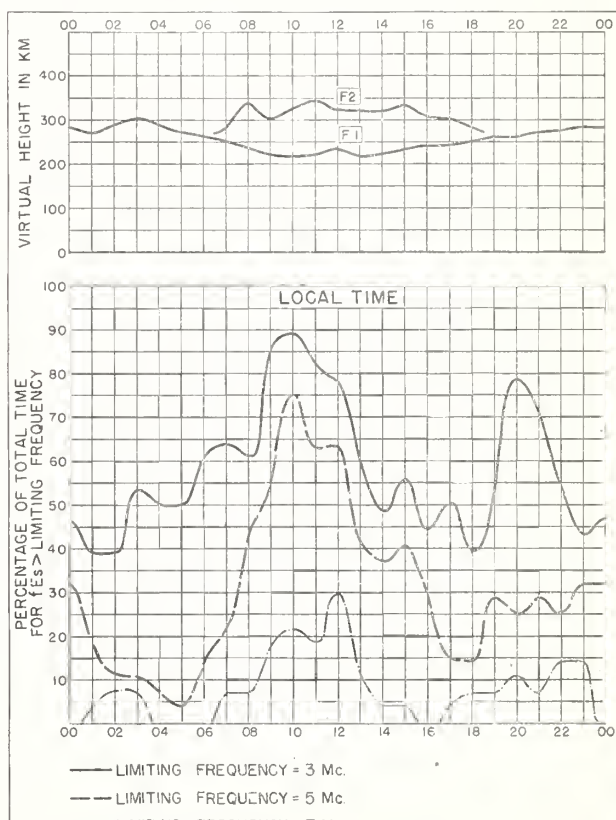


Fig. 100. CHRISTCHURCH, N. Z. FEBRUARY 1952

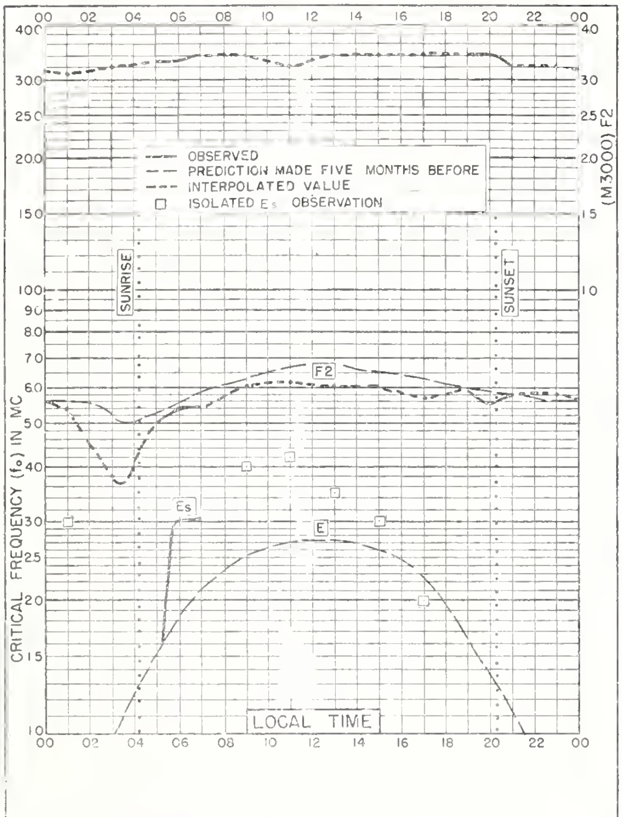


Fig. 101. DECEPCION I.
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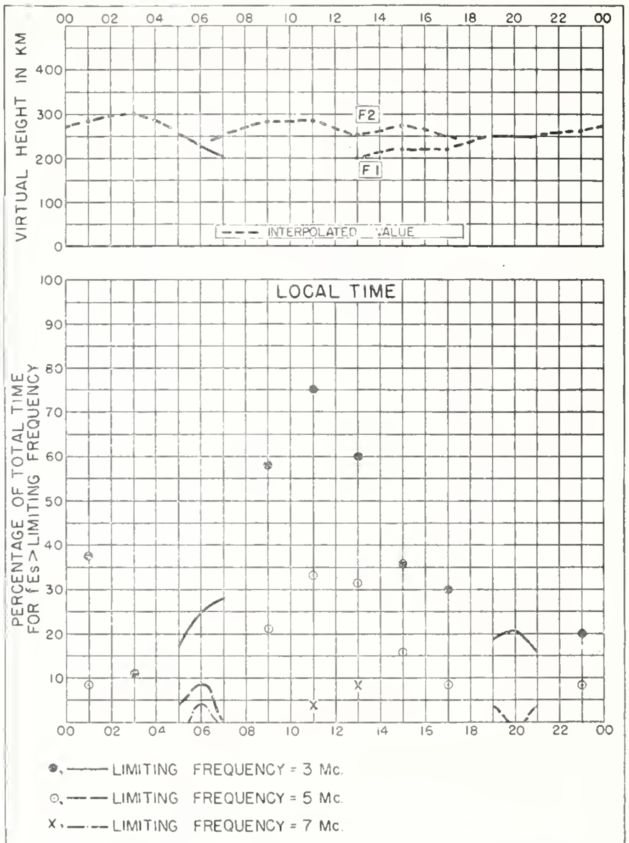

Fig. 102. DECEPCION I. FEBRUARY 1952

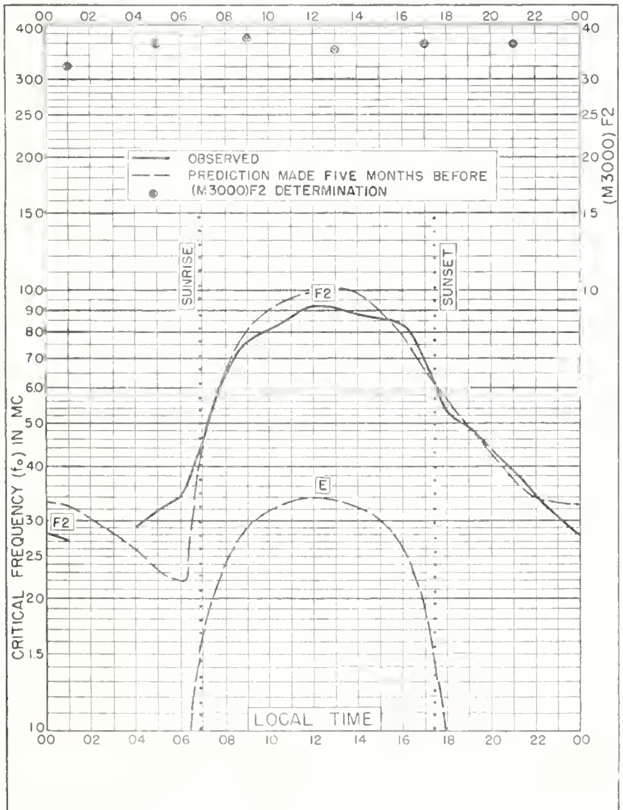

Fig. 103. DELHI, INDIA
28 6°N, 77. 1°E JANUARY 1952

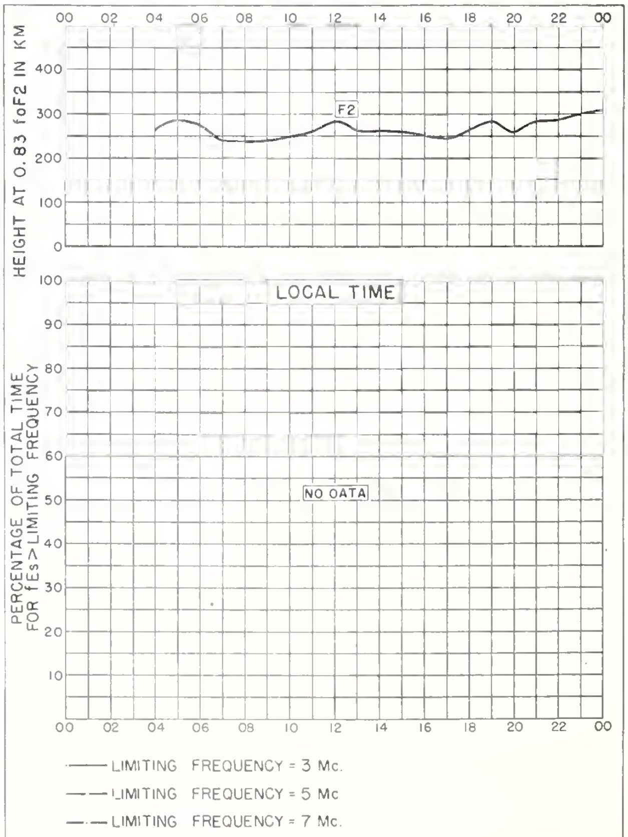

Fig. 104. DELHI, INDIA JANUARY 1952

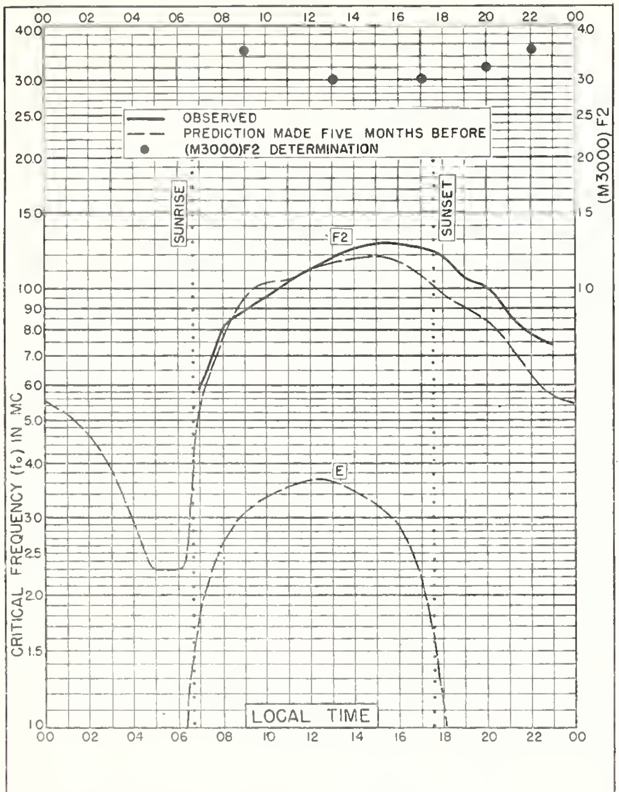

Fig. 105. BOMBAY, INDIA
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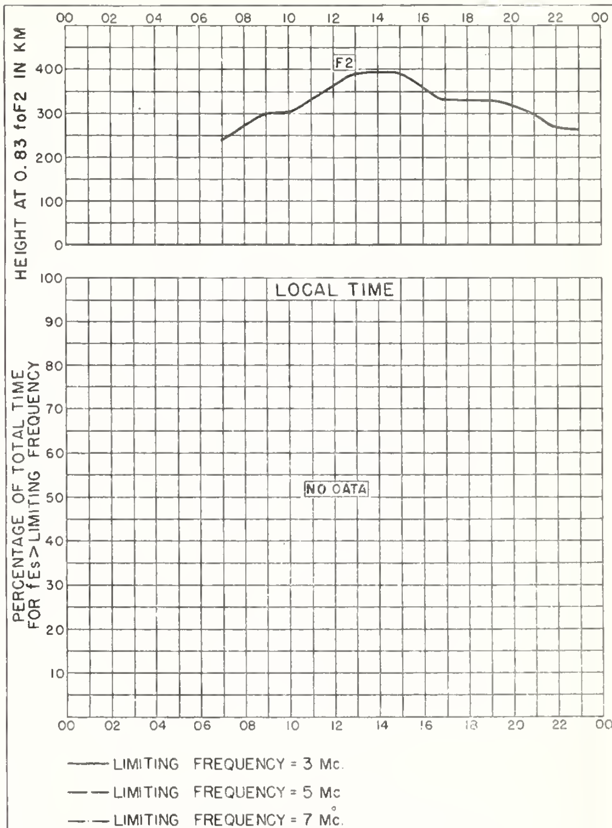

Fig. 106. BOMBAY, INDIA JANUARY 1952

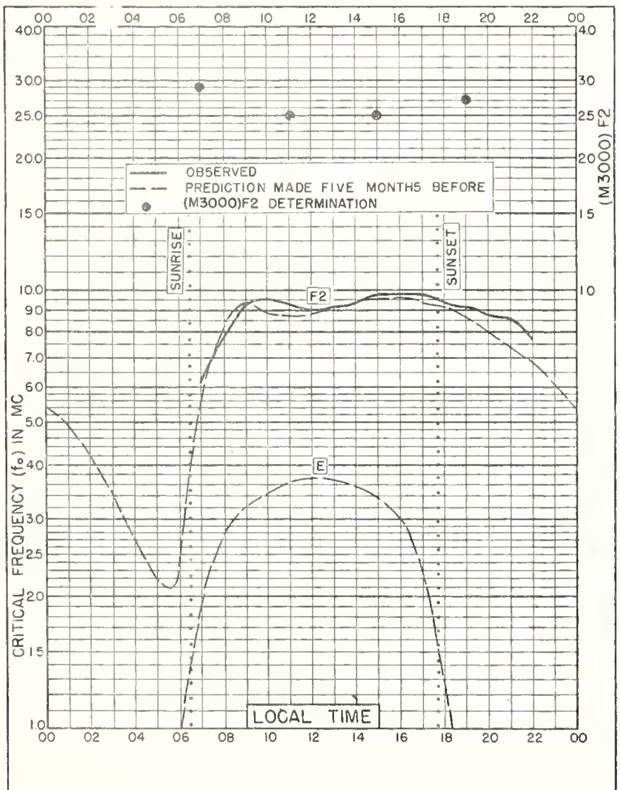

Fig. 107. MADRAS, INDIA
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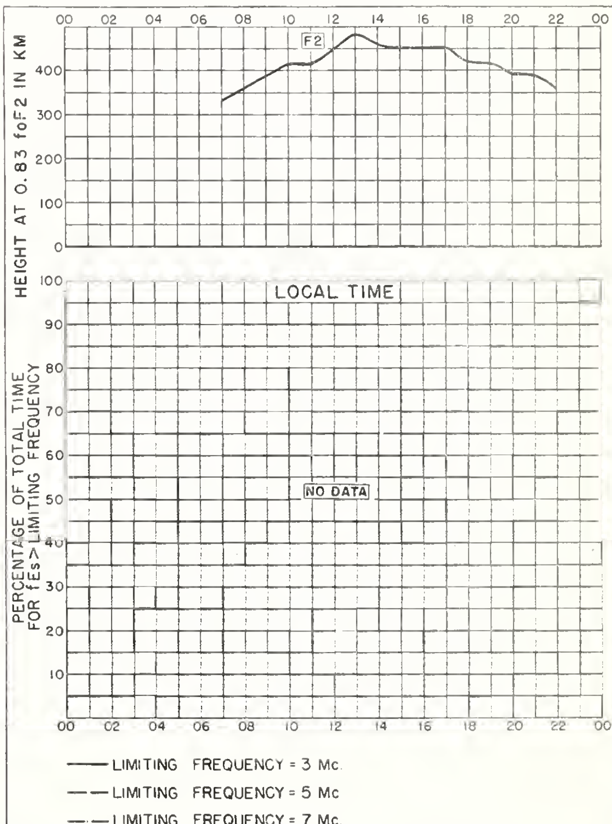

Fig. 108. MADRAS, INDIA JANUARY 1952

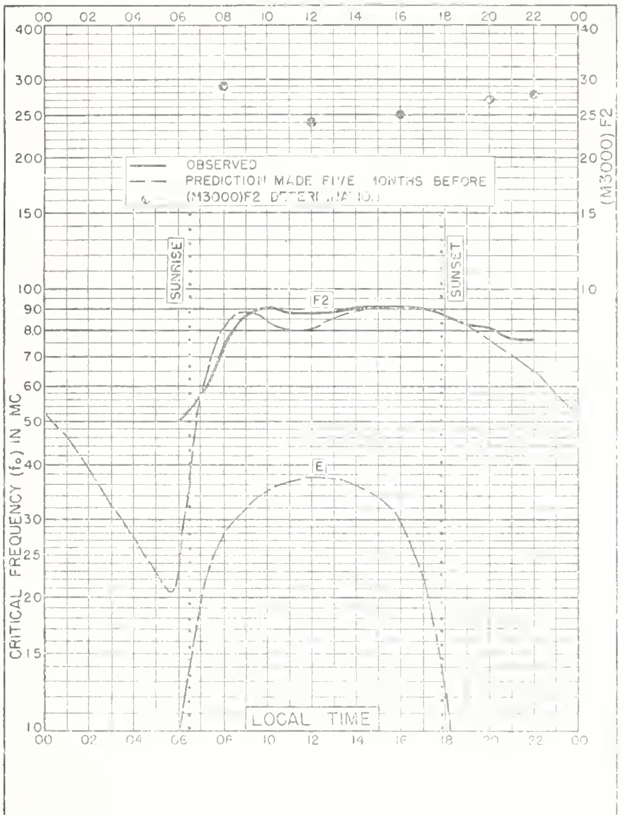

Fig. 109. TIRUCHY, INDIA
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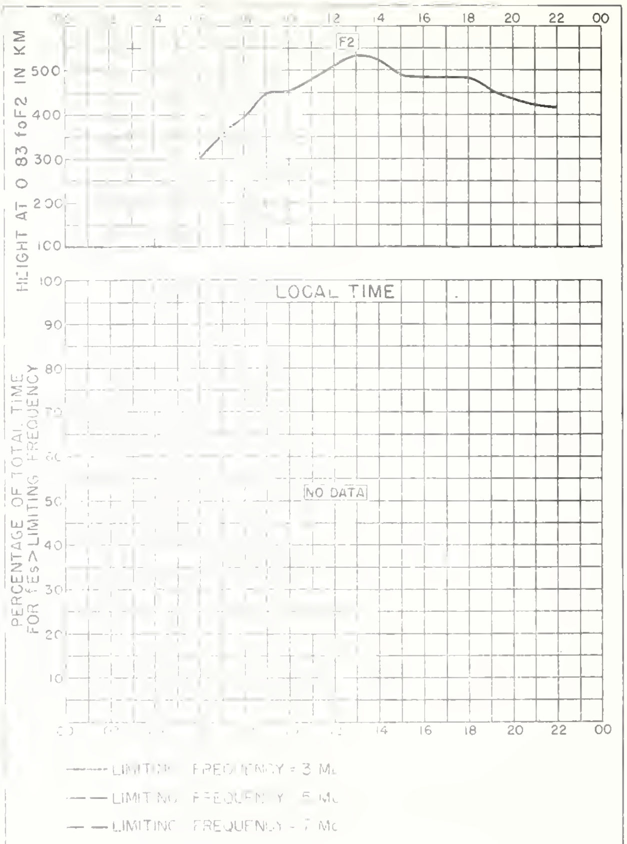

Fig. 110. TIRUCHY, INDIA JANUARY 1952

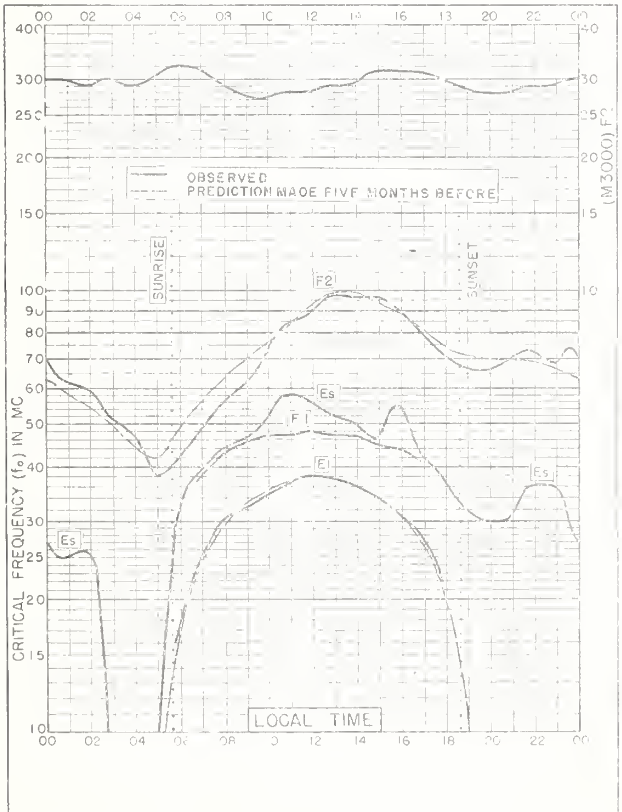

Fig. 111. TOWNSVILLE, AUSTRALIA
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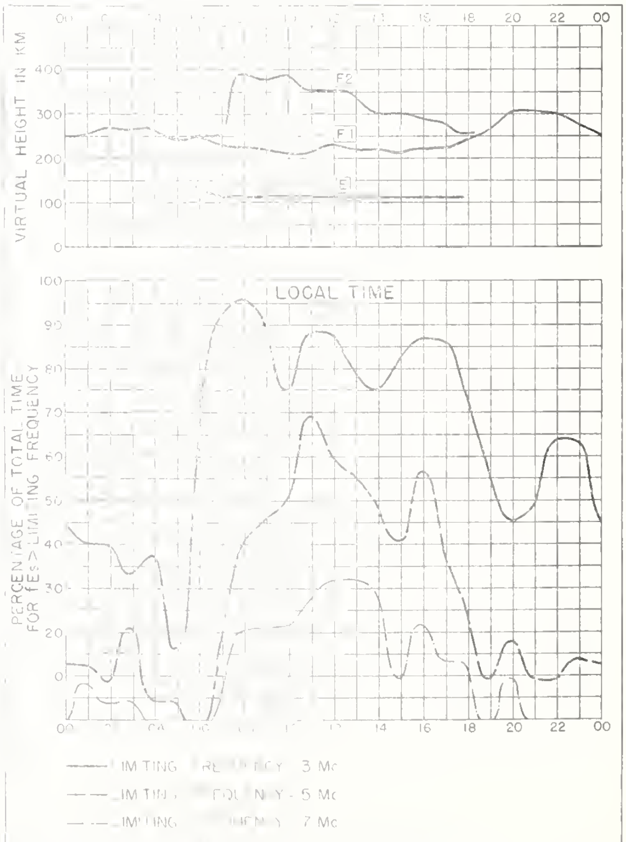

Fig. 112. TOWNSVILLE, AUSTRALIA JANUARY 1952

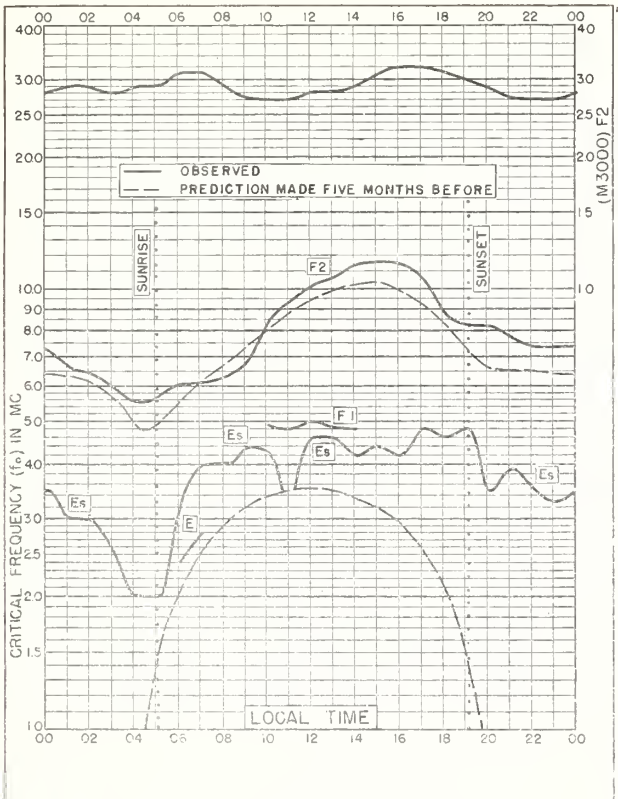

Fig.113. BUENOS AIRES, ARGENTINA
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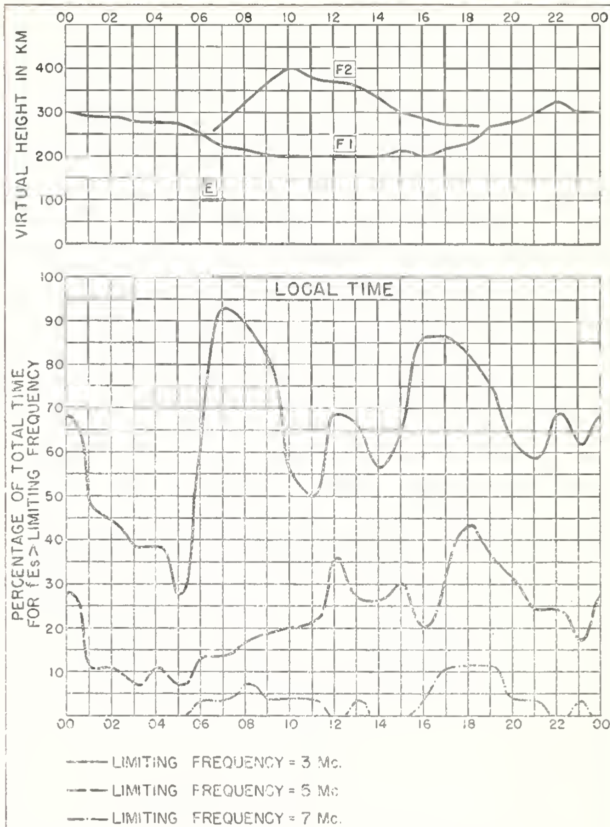

Fig.114. BUENOS AIRES, ARGENTINA JANUARY 1952

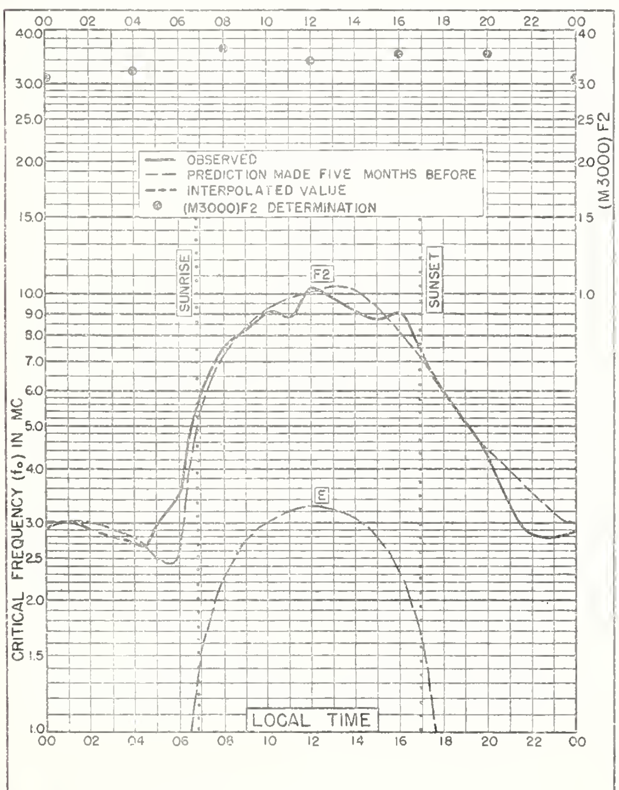

Fig.115. DELHI, INDIA
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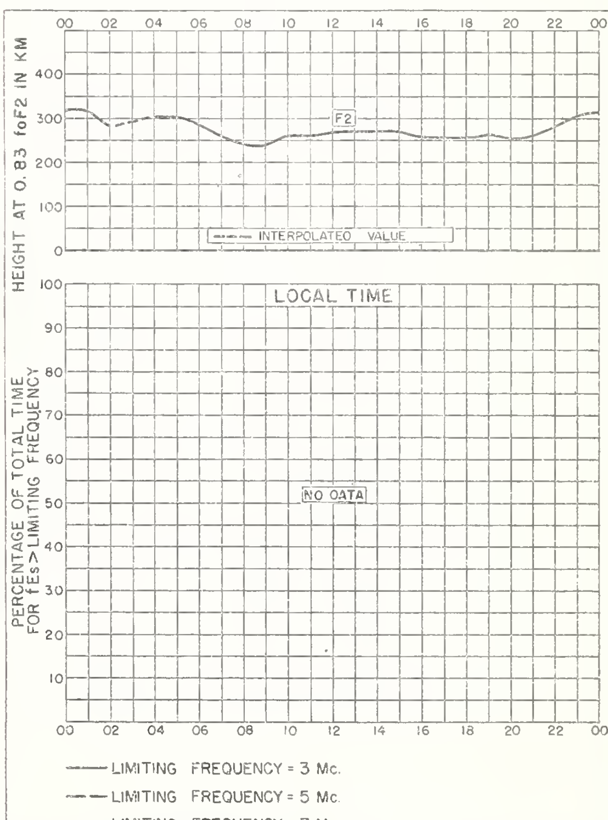

Fig.116. DELHI, INDIA DECEMBER 1951

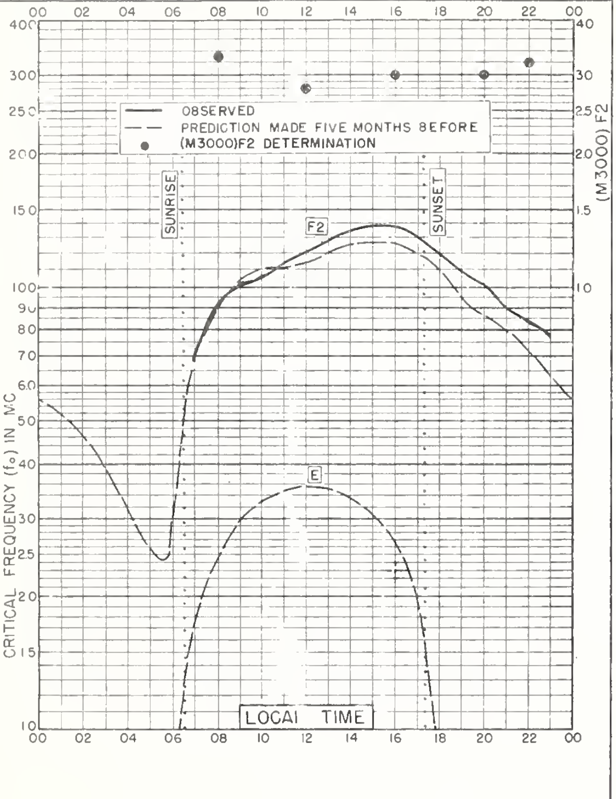

Fig. 117 BOMBAY, INDIA
19.0°N, 73.0°E DECEMBER 1951

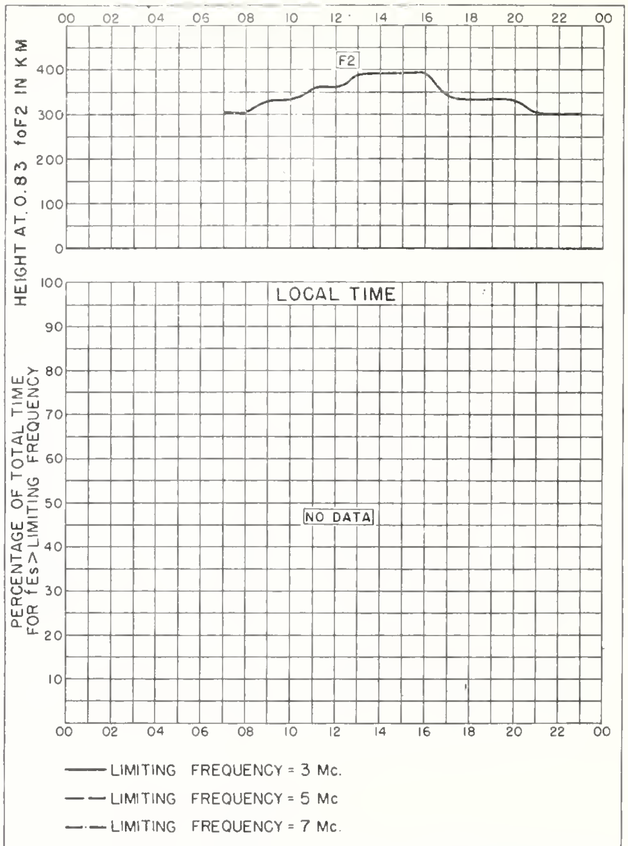

Fig. 118. BOMBAY, INDIA DECEMBER 1951

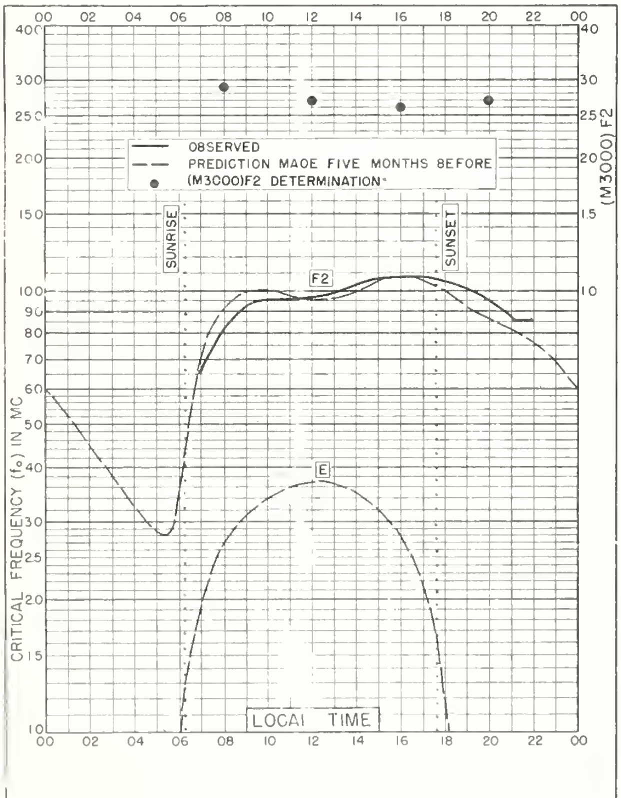

Fig. 119. MADRAS, INDIA
13.0°N, 80.2°E DECEMBER 1951

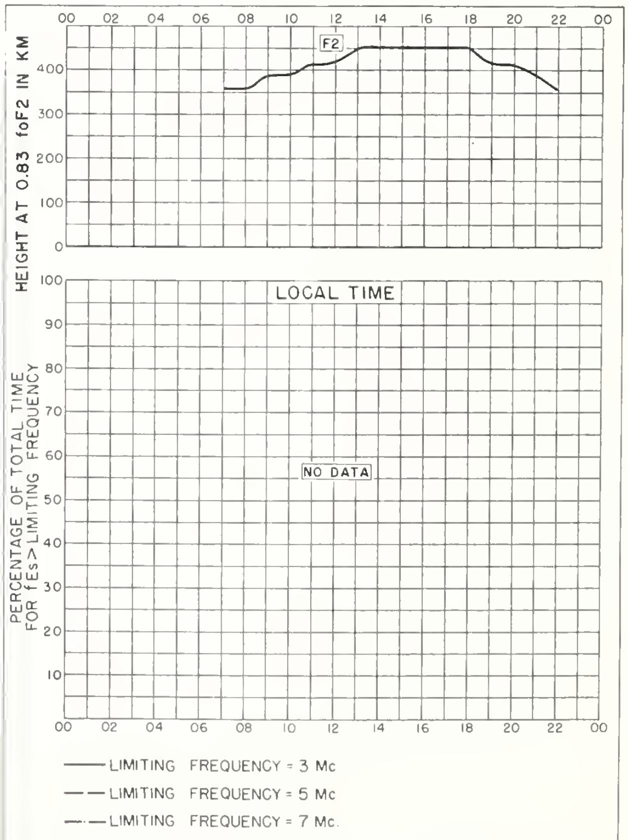

Fig. 120. MADRAS, INDIA DECEMBER 1951

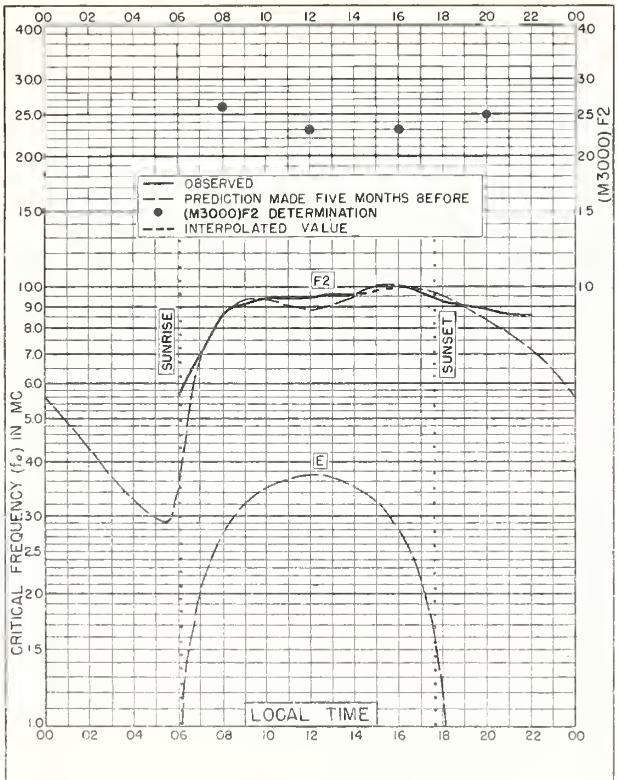

Fig. 121. TIRUCHY, INDIA
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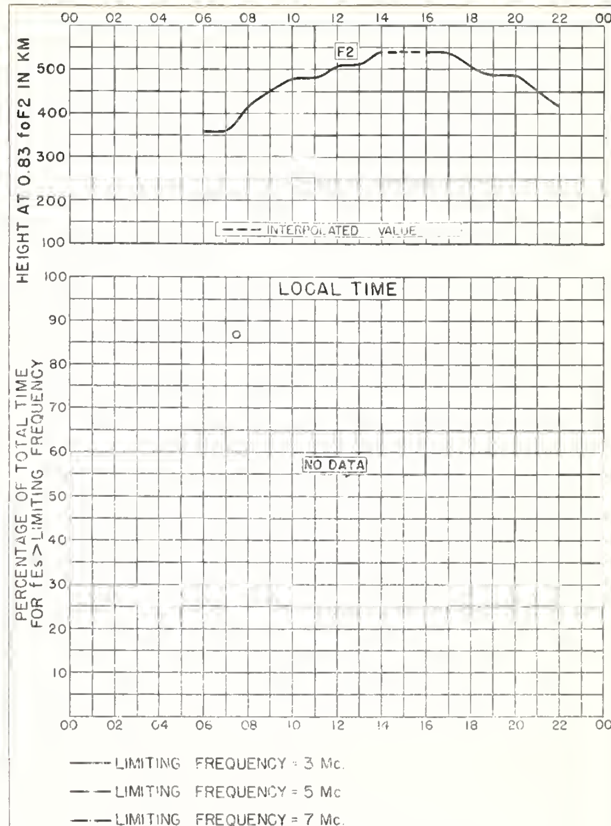

Fig. 122. TIRUCHY, INDIA DECEMBER 1951

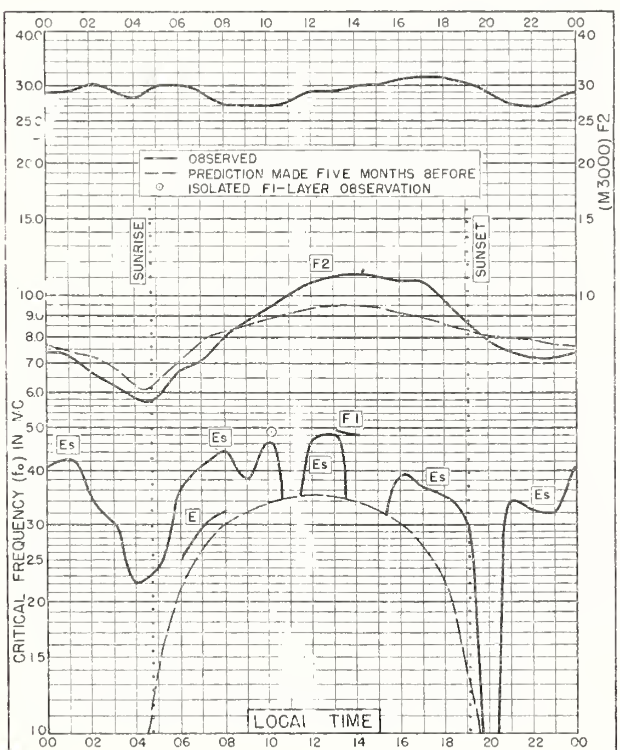

Fig. 123. BUENOS AIRES, ARGENTINA
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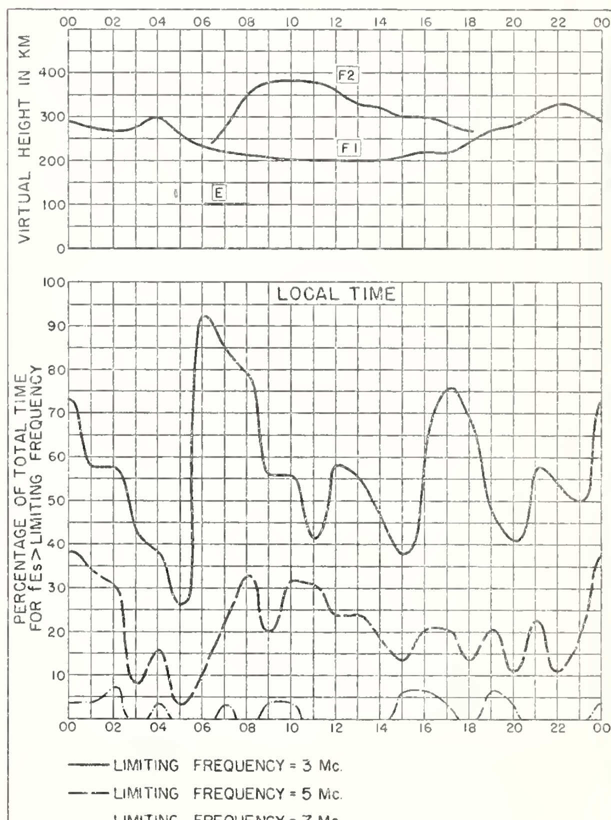

Fig. 124. BUENOS AIRES, ARGENTINA DECEMBER 1951

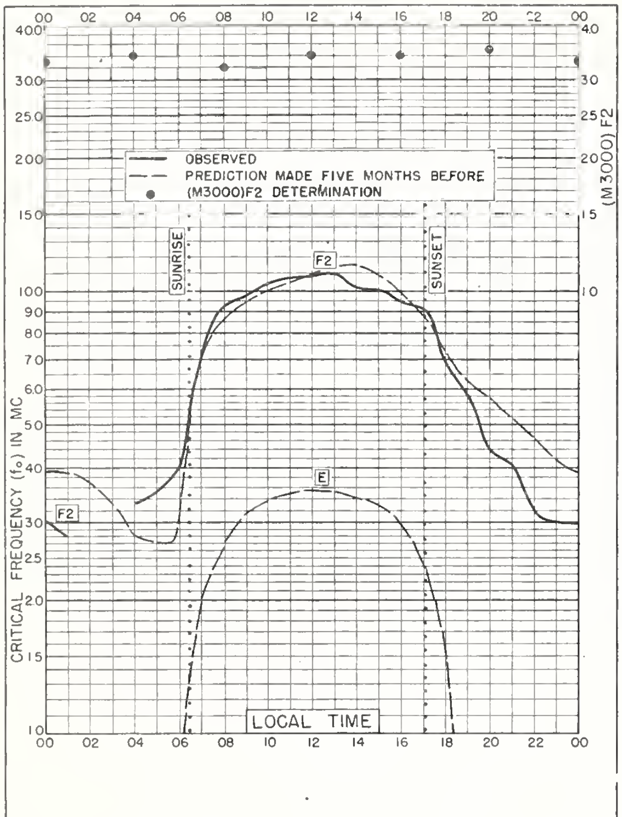

Fig.125. DELHI, INDIA
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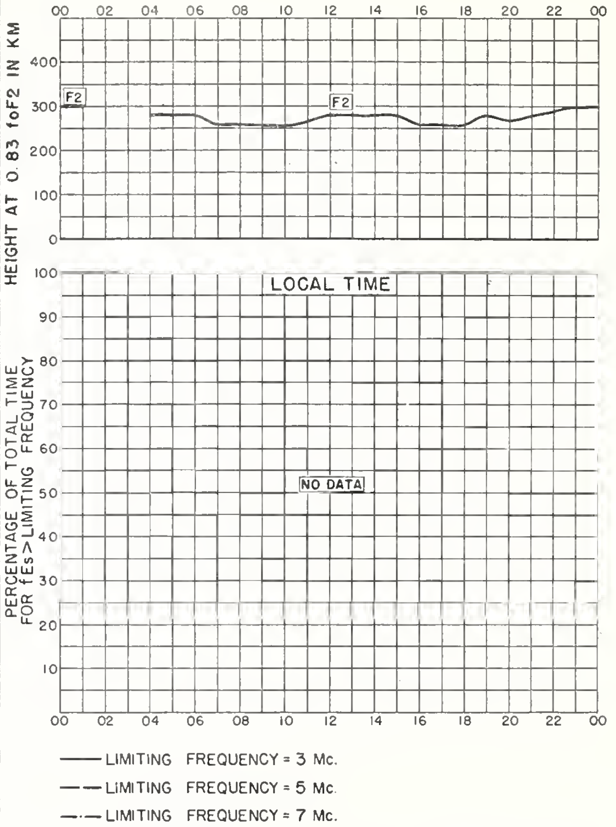

Fig.126. DELHI, INDIA NOVEMBER 1951

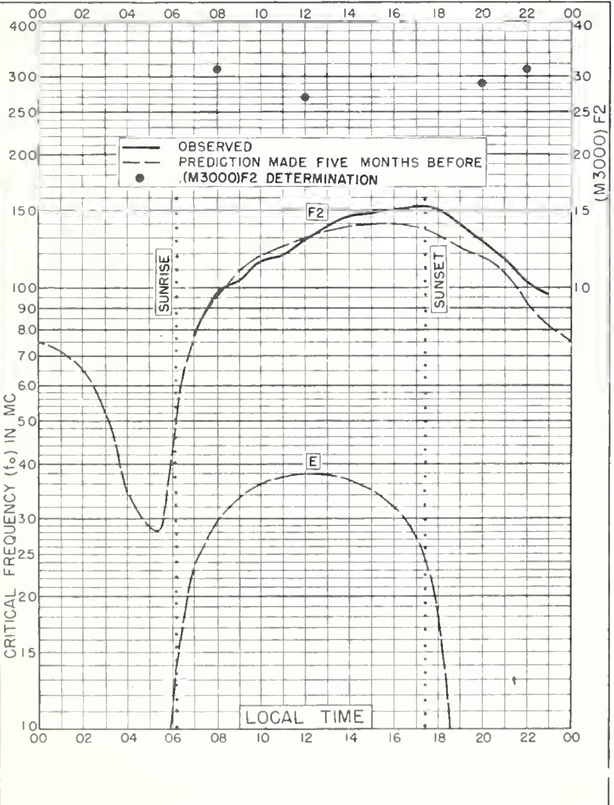

Fig.127. BOMBAY, INDIA
19.0°N, 73.0°E NOVEMBER 1951

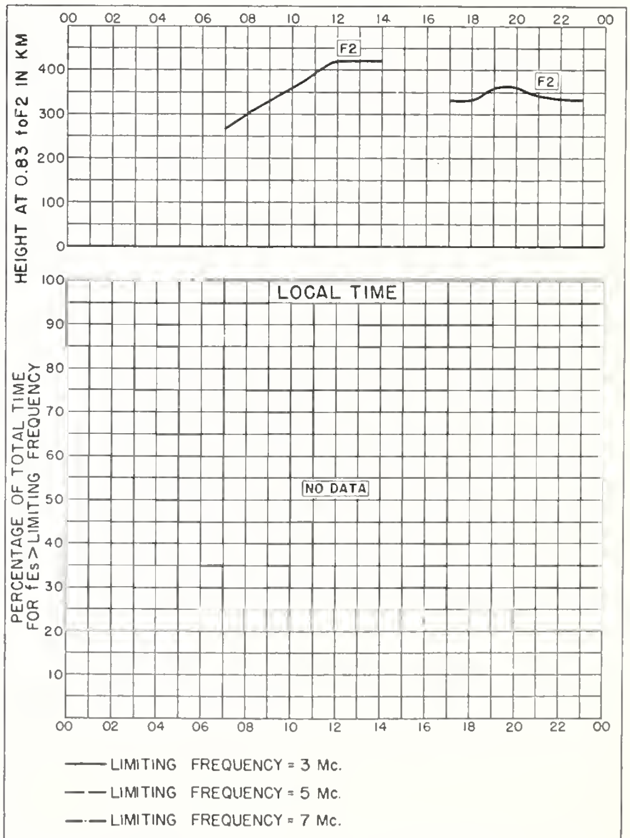

Fig.128. BOMBAY, INDIA NOVEMBER 1951

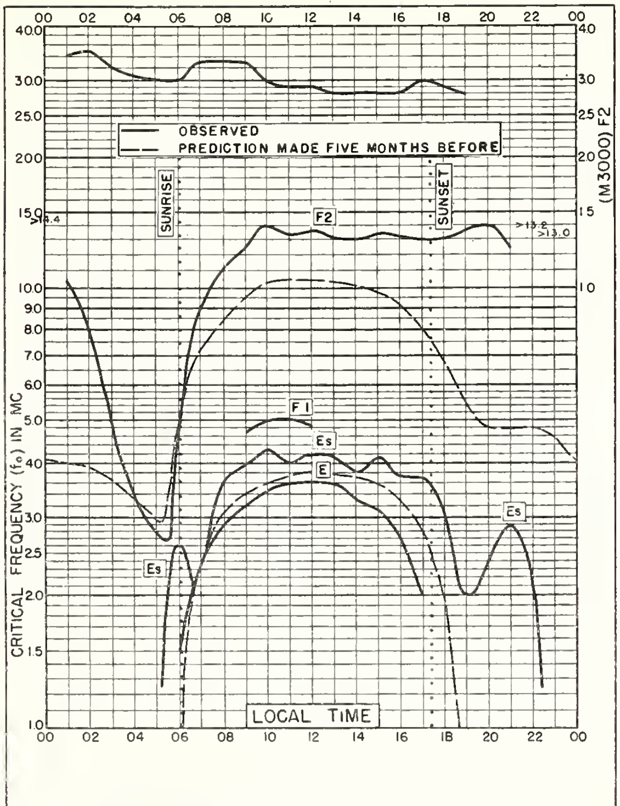

Fig.129. DAKAR, FRENCH W. AFRICA
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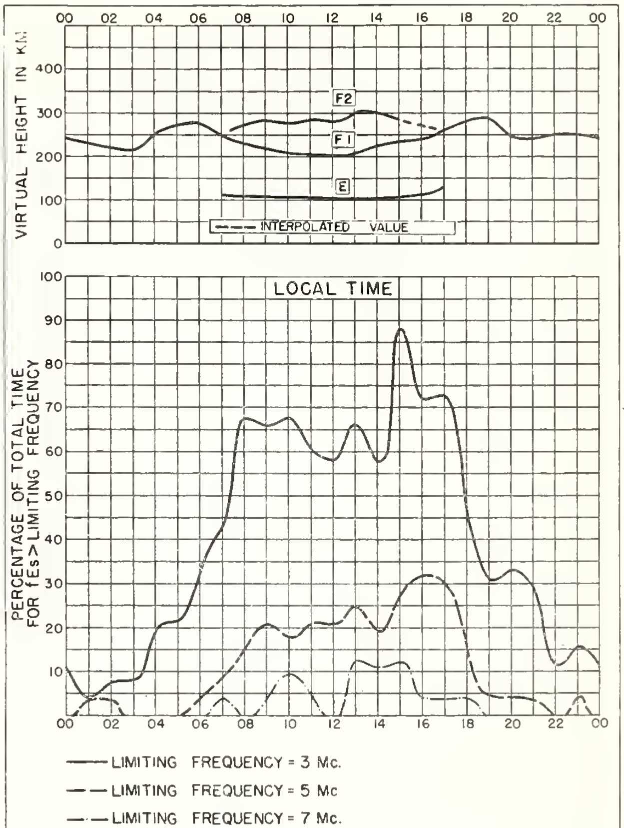

Fig.130. DAKAR, FRENCH W. AFRICA NOVEMBER 1951

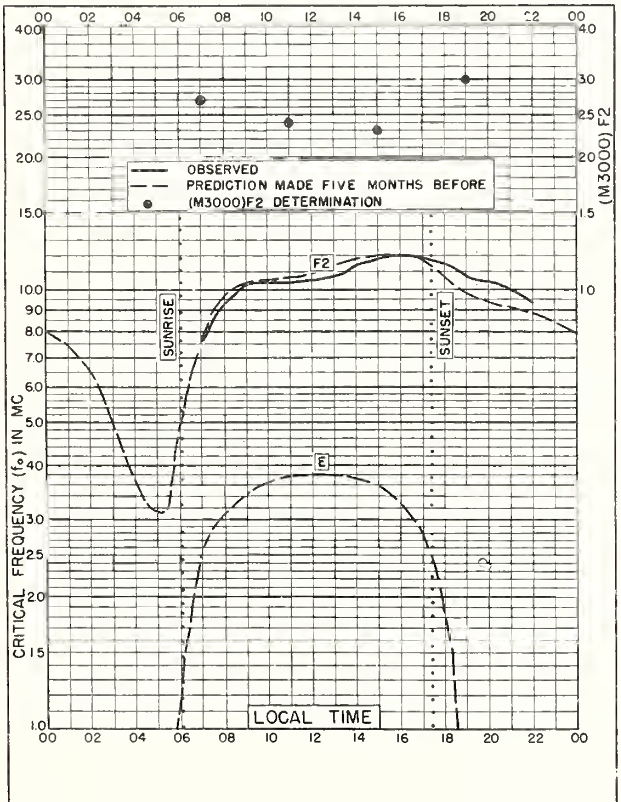

Fig.131. MADRAS, INDIA
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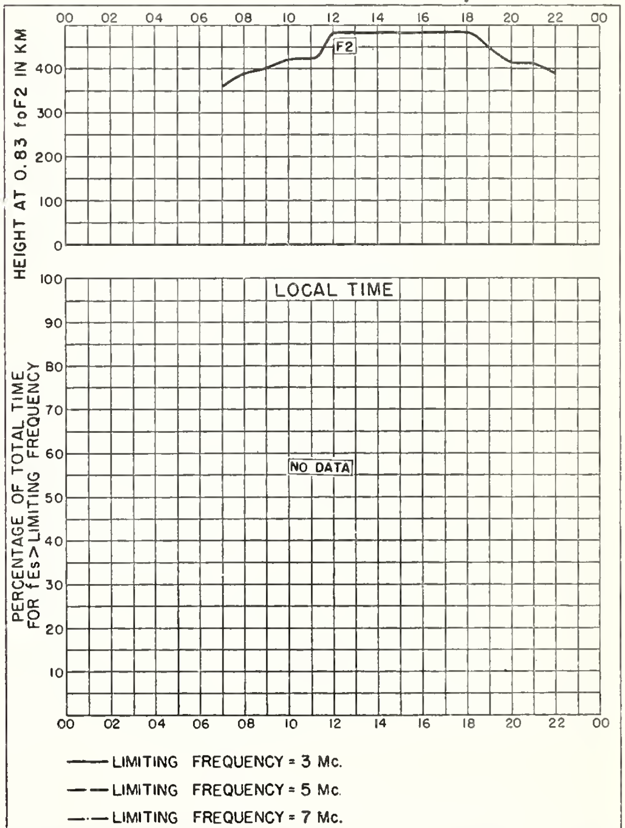
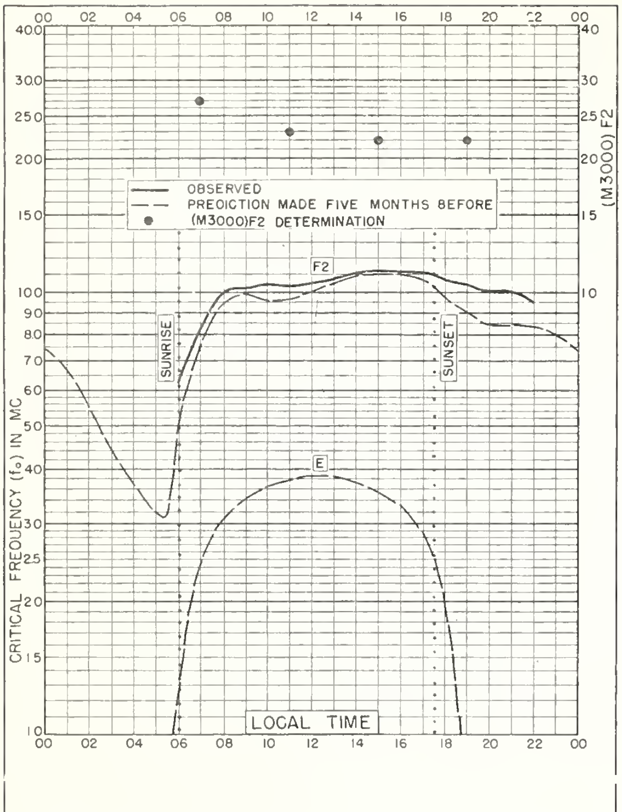


Fig.132. MADRAS, INDIA NOVEMBER 1951



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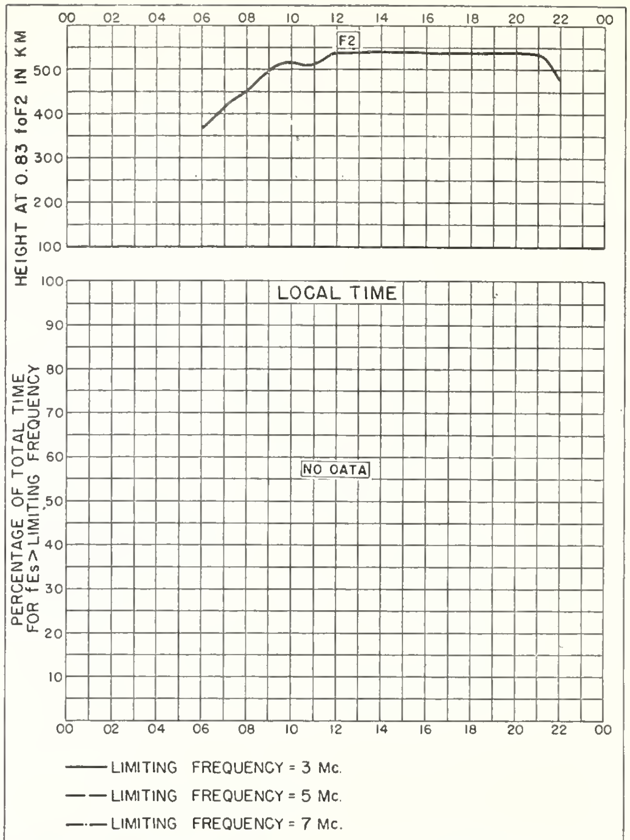

Fig. 134. TIRUCHY, INDIA NOVEMBER 1951

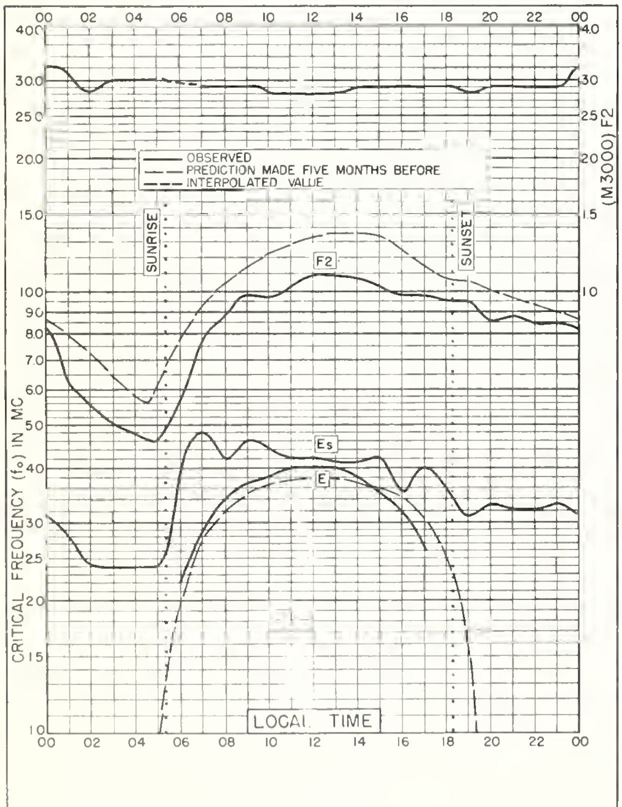

Fig. 135. TANANARIVE, MADAGASCAR
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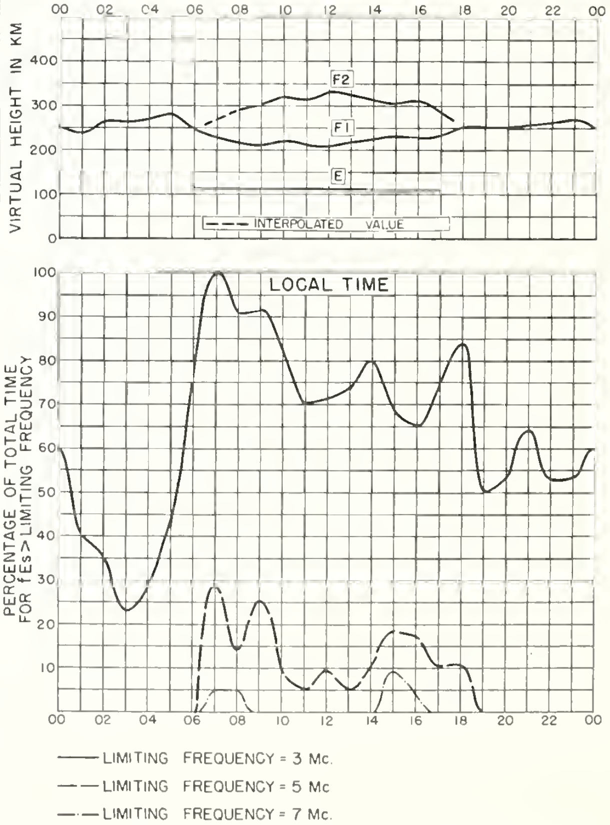

Fig. 136. TANANARIVE, MADAGASCAR NOVEMBER 1951

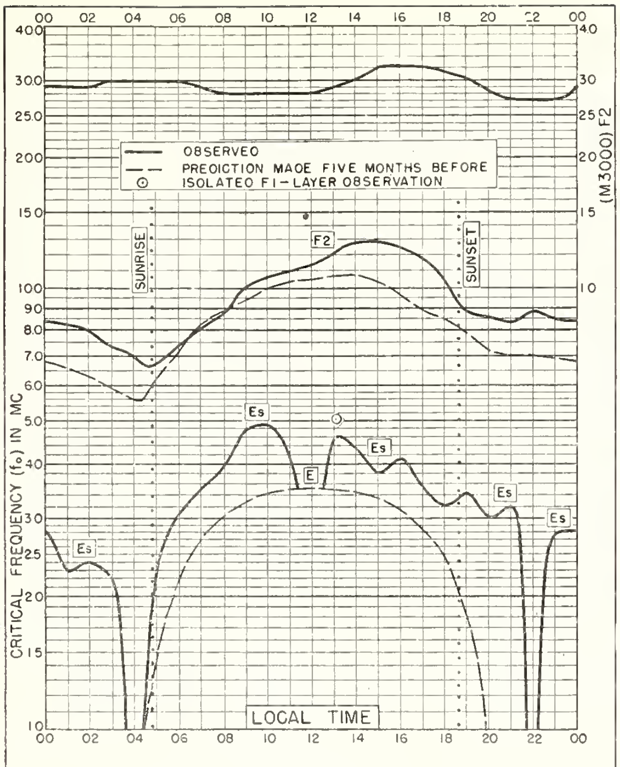

Fig. 137. BUENOS AIRES, ARGENTINA
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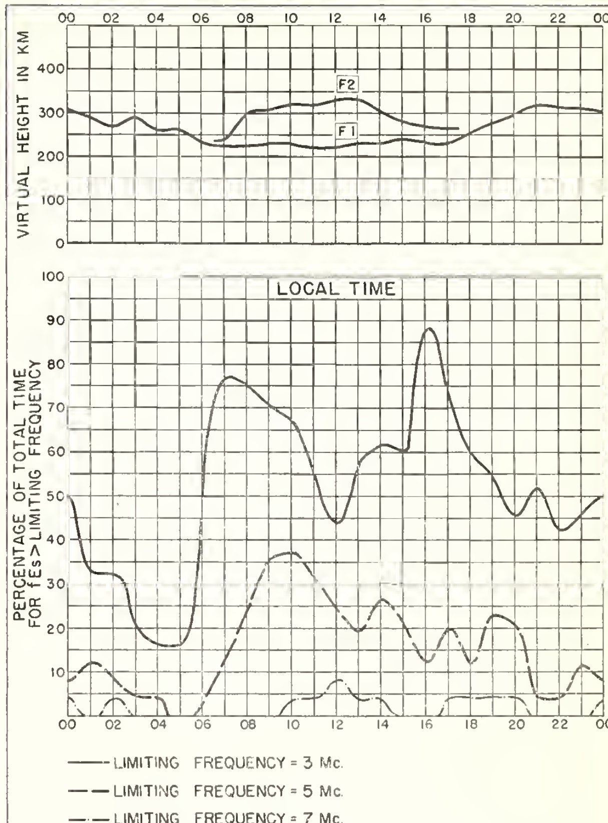

Fig. 138. BUENOS AIRES, ARGENTINA NOVEMBER 1951

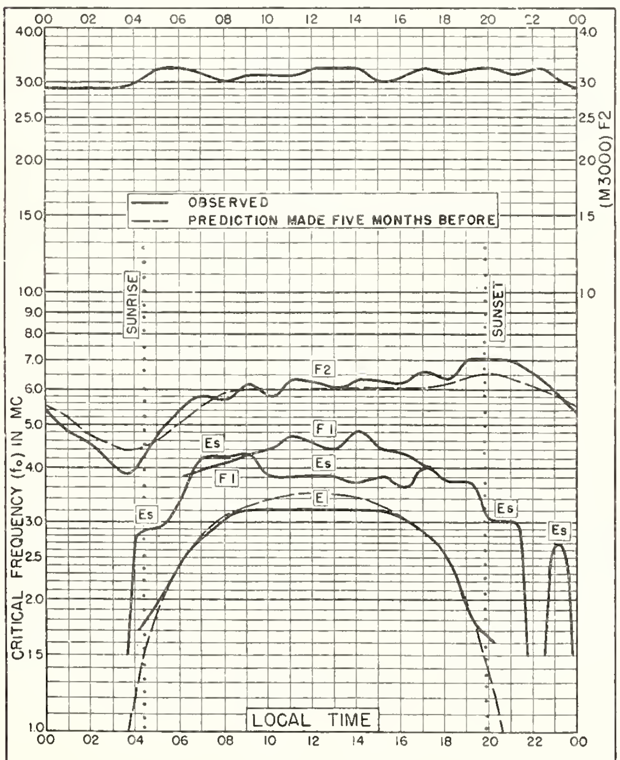

Fig. 139. DOMONT, FRANCE
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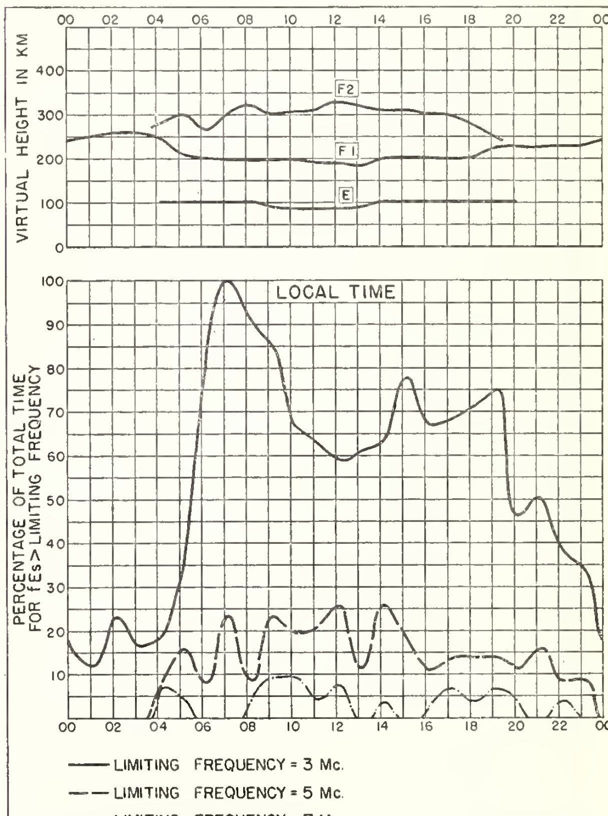
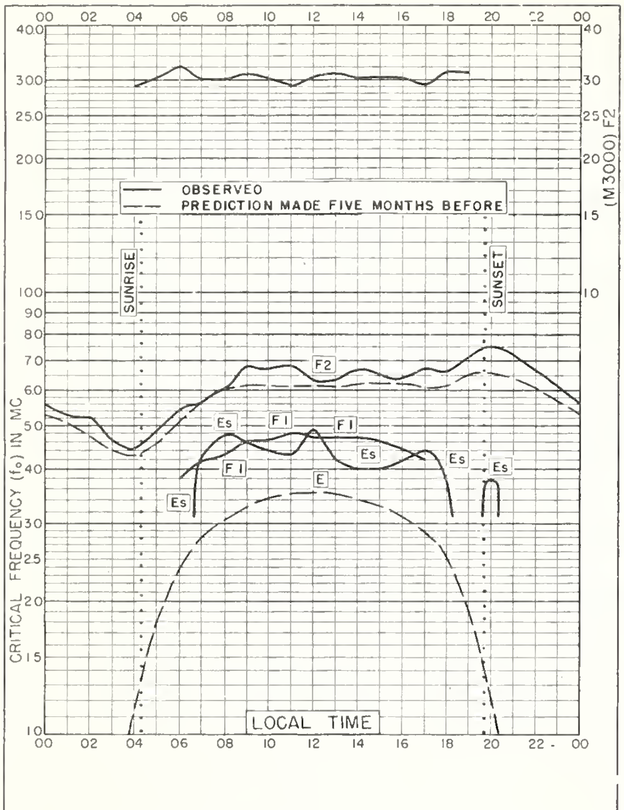


Fig. 140. DOMONT, FRANCE JULY 1951



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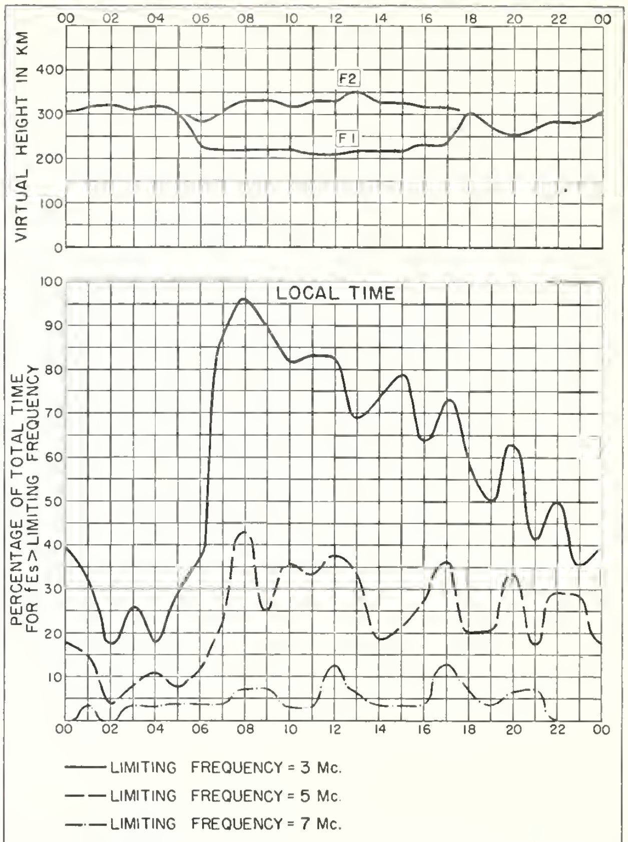
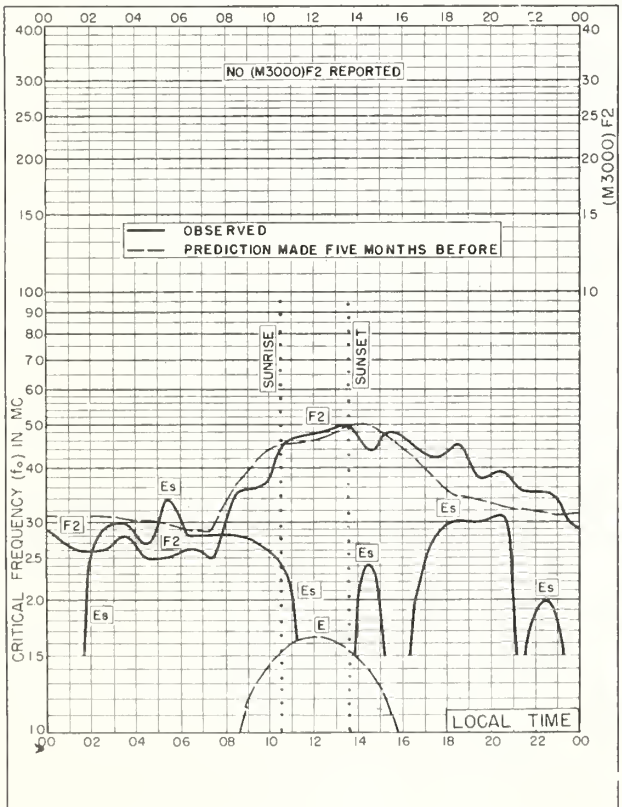


Fig. 142. POITIERS, FRANCE JULY 1951



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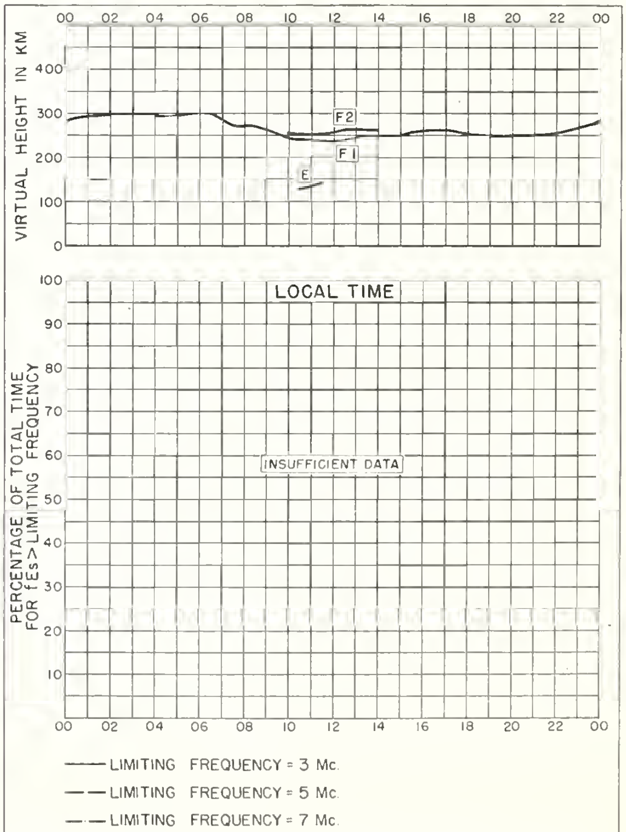

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CRPL and IRPL Reports

[A list of CRPL Section Reports is available from the Central Radio Propagation Laboratory upon request]

Daily:

Radio disturbance warnings, every half hour from broadcast station WWV of the National Bureau of Standards.
Telephoned and telegraphed reports of ionospheric, solar, geomagnetic, and radio propagation data.

Weekly:

CRPL—J. Radio Propagation Forecast (of days most likely to be disturbed during following month).

Semimonthly:

CRPL—Ja. Semimonthly Frequency Revision Factors For CRPL Basic Radio Propagation Prediction Reports.

Monthly:

CRPL—D. Basic Radio Propagation Predictions—Three months in advance. (Dept. of the Army, TB 11–499–, monthly supplements to TM 11–499; Dept. of the Navy, DNC 13 ( ) series; Dept. of the Air Force, TO 16-1B-2 series.)
CRPL—F. Ionospheric Data.
*IRPL—A. Recommended Frequency Bands for Ships and Aircraft in the Atlantic and Pacific.
*IRPL—H. Frequency Guide for Operating Personnel.

Circulars of the National Bureau of Standards:

NBS Circular 462. Ionospheric Radio Propagation.
NBS Circular 465. Instructions for the Use of Basic Radio Propagation Predictions.

Reports issued in past:

IRPL—C61. Report of the International Radio Propagation Conference, 17 April to 5 May 1944.
IRPL—G1 through G12. Correlation of D. F. Errors With Ionospheric Conditions.
IRPL—R. Nonscheduled reports:
- R4. Methods Used by IRPL for the Prediction of Ionosphere Characteristics and Maximum Usable Frequencies.
- R5. Criteria for Ionospheric Storminess.
- **R6. Experimental Studies of Ionospheric Propagation as Applied to the Loran System.
- R7. Second Report on Experimental Studies of Ionospheric Propagation as Applied to the Loran System.
- R9. An Automatic Instantaneous Indicator of Skip Distance and MUF.
- R10. A Proposal for the Use of Rockets for the Study of the Ionosphere.
- **R11. A Nomographic Method for both Prediction and Observation Correlation of Ionosphere Characteristics.
- **R12. Short Time Variations in Ionosphere Characteristics.
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- **R15. Predicted Limits for F2-Layer Radio Transmission Throughout the Solar Cycle.
- **R17. Japanese Ionospheric Data—1943.
- R18. Comparison of Geomagnetic Records and North Atlantic Radio Propagation Quality Figures—October 1943 Through May 1945.
- **R21. Notes on the Preparation of Skip-Distance and MUF Charts for Use by Direction-Finder Stations. (For distances out to 4000 km.)
- **R23. Solar-Cycle Data for Correlation with Radio Propagation Phenomena.
- **R24. Relations Between Band Width, Pulse Shape and Usefulness of Pulses in the Loran System.
- **R25. The Prediction of Solar Activity as a Basis for the Prediction of Radio Propagation Phenomena.
- **R26. The Ionosphere as a Measure of Solar Activity.
- R27. Relationships Between Radio Propagation Disturbance and Central Meridian Passage of Sunspots Grouped by Distance From Center of Disc.
- **R30. Disturbance Rating in Values of IRPL Quality-Figure Scale from A. T. & T. Co. Transmission Disturbance Reports to Replace T. D. Figures as Reported.
- **R31. North Atlantic Radio Propagation Disturbances, October 1943 Through October 1945.
- **R33. Ionospheric Data on File at IRPL.
- **R34. The Interpretation of Recorded Values of *fEs*.
- **R35. Comparison of Percentage of Total Time of Second-Multiple *Es* Reflections and That of *fEs* in Excess of 3 Mc.

IRPL—T. Reports on tropospheric propagation:
- T1. Radar operation and weather. (Superseded by JANP 101.)
- T2. Radar coverage and weather. (Superseded by JANP 102.)

CRPL—T3. Tropospheric Propagation and Radio-Meteorology. (Reissue of Columbia Wave Propagation Group WPG—5.)

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